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N. C. Department  
of  
Conservation and Development  
Report

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EIGHTH BIENNIAL REPORT  
OF  
**The Department of Conservation  
and Development**  
OF THE  
STATE OF NORTH CAROLINA



BIENNIUM ENDING JUNE 30, 1940





# EIGHTH BIENNIAL REPORT

OF

## THE DEPARTMENT OF CONSERVATION AND DEVELOPMENT

of the

### STATE OF NORTH CAROLINA

For the Biennium Ending June 30, 1940

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#### BOARD OF CONSERVATION AND DEVELOPMENT

GOVERNOR CLYDE R. HOEY, <i>Chairman ex-officio</i> .....	Raleigh
*J. Q. GILKEY, <i>Vice Chairman</i> .....	Marion
SANTFORD MARTIN .....	Winston-Salem
JOSH L. HORNE .....	Rocky Mount
COLEMAN W. ROBERTS .....	Charlotte
JOS. J. STONE .....	Greensboro
THURMOND CHATHAM .....	Winston-Salem
J. W. HARRELSON .....	Raleigh
JAS. L. MCNAIR .....	Laurinburg
ROY HAMPTON .....	Plymouth
JOHN R. McLAUGHLIN .....	Statesville
CHAS. E. RAY, JR. ....	Waynesville
E. I. BUGG .....	Durham

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R. BRUCE ETHERIDGE, *Director* ..... Raleigh

\*Deceased. Josh L. Horne elected vice chairman to succeed Mr. Gilkey.

FOURTH ANNUAL REPORT

THE DEPARTMENT OF CONSERVATION

AND DEVELOPMENT

STATE OF NEW YORK

1914-1915



## LETTER OF TRANSMITTAL

Raleigh, N. C.  
October 15, 1940

To His Excellency, HON. CLYDE R. HOEX,  
*Governor of North Carolina.*

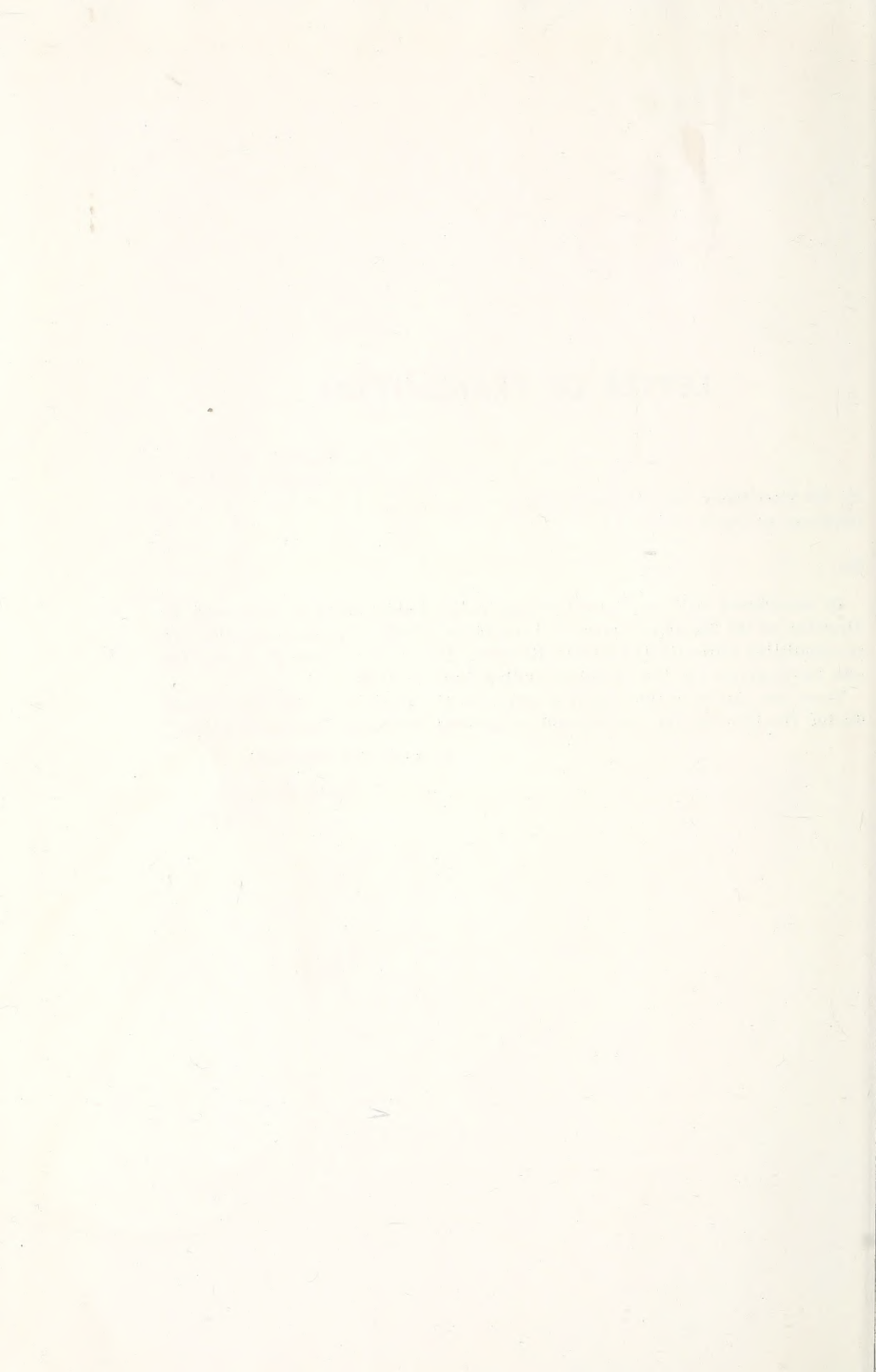
Sir:

In accordance with Section 11, Chapter 122, Public Laws of 1925, and by direction of the Board of Conservation and Development, I have the pleasure of submitting herewith the Eighth Report of the Department of Conservation and Development for the biennium ending June 30, 1940.

There are shown in this report a review of the activities of the Department during the last two-year period and a financial statement for the biennium.

Respectfully submitted,

R. BRUCE ETHERIDGE,  
*Director.*



# DEPARTMENT PERSONNEL AND PRINCIPAL OFFICERS

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## ADMINISTRATIVE

R. BRUCE ETHERIDGE, *Director*  
PAUL KELLY, *Assistant Director*  
R. N. SANFORD, *Auditor*  
MRS. ETOYAL P. HOBIE, *Senior Accounting Clerk*  
EULA LINCOLN, *Junior Accounting Clerk*  
MARGARET DAUGHTRIDGE, *Senior Stenographer-Clerk*  
MRS. FRANCES P. WARNER, *Senior Stenographer-Clerk*  
W. W. BROUGHTON, *Junior General Clerk*

## DIVISION OF COMMERCIAL FISHERIES

CAPT. JOHN A. NELSON, *Commissioner*  
N. R. WEBB, *Principal Accounting Clerk*  
MARY E. WILLIS, *Senior Stenographer*  
E. C. HUBBARD, *District Sanitarian*  
ASSISTANT COMMISSIONERS  
THOMAS A. BASNIGHT, *Manteo*  
GLENN A. WILLIS, *Morehead City*

## DIVISION OF COMMERCE AND INDUSTRY

J. T. ANDERSON, *Industrial Engineer*  
CECIL E. BELL, *Ass't Industrial Engineer*  
ELIZABETH SHIPMAN, *Junior Stenographer-Clerk*

## DIVISION OF FORESTRY

J. S. HOLMES, *State Forester*  
W. C. MCCORMICK, *Assistant State Forester*  
F. H. CLARIDGE, *Assistant State Forester*  
W. K. BEICHLER, *Forest Inspector*  
THOMAS W. MORSE, *Superintendent of State Parks*  
C. C. STOTT, *Ass't Superintendent of State Parks*  
MRS. GRACE W. PREVOST, *Principal Accounting Clerk*  
MRS. MABEL D. YOUNG, *Senior Stenographer-Clerk*  
MRS. ELSIE EASON, *Senior Stenographer*  
VIOLA MAXWELL, *Junior Stenographer-Clerk*  
SUSAN MARSHALL, *Junior Stenographer-Clerk*  
ELIZABETH YANCEY, *Junior Stenographer-Clerk*



## DISTRICT FORESTERS

J. R. SPRATT, Asheville and Lenoir	P. W. TILLMAN, Rocky Mount
J. M. STINGLEY, New Bern	J. B. LATTAY, Fayetteville

## JUNIOR FORESTERS MANAGEMENT

PHILIP A. GRIFFITHS, Junior Forester, Penrose  
LAFLOYD H. HOBBS, Junior Forester, Elizabethtown

## DISTRICT FOREST RANGERS

DAN BLAKE, Asheville	F. L. HOOKER, New Bern
E. P. SIMMONS, Lenoir	E. C. FEREBEE, Rocky Mount
T. R. McMILLAN, Fayetteville	FLOYD JONES, Rockingham
PAUL E. SEBRING, Fayetteville	

## DISTRICT OFFICE CLERK-STENOGRAPHERS

KATHLEEN MORISON, Asheville	ELIZABETH LAWRENCE, New Bern
MARY PULLIAM, Lenoir	ELIZABETH ADAMS, Rocky Mount
VIRGIE PERRY, Rockingham	ELIZABETH BENNETT, Fayetteville

## CARETAKERS—STATE PARKS

Ed WILSON, Mount Mitchell	Mrs. LOTT W. HUMPHREY, Fort Macon
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## NURSERYMAN—CLAYTON NURSERY

MOODY M. CLEMMONS, Clayton

# DIVISION OF GAME AND INLAND FISHERIES

J. D. CHALK, *Commissioner*

E. B. KUGLER, *Assistant to Commissioner*

J. D. FINDLAY, *Assistant to Commissioner*

MRS. ALICE W. AUSTELL, *Senior Stenographer-Clerk*

INA OLIVIA BROWN, *Junior Stenographer-Clerk*

EVELYN ROGERS, *Senior Account-Clerk*

## DISTRICT GAME PROTECTORS

J. A. BRADSHAW, Asheville	T. M. CARTER, Rockingham
FRED D. WILLIAMS, Fayetteville	LARRY E. WARRINGTON, New Bern
RUPERT E. WEST, Moyock	E. P. KEEN, Raleigh

H. GRADY FARTHING, Boone

FRED C. OTT, *Supervisor Game Farms*, Hoffman

GEO. L. DAVIS, JR., *Superintendent Game Farm*, Fayetteville

C. N. MEASE, *Chief Refuge Supervisor*, Asheville

## FARM-GAME MANAGEMENT

ROSS O. STEVENS, *Biologist in Charge*, Raleigh

R. B. ARMFIELD, *Supervising Field Biologist*, Raleigh

E. L. MEADOWS, *Biologist*, Asheville

BEN JAMES, *Biologist*, Robersonville  
H. C. RUCKER, *Biologist*, Hoffman  
J. C. DARSIE, *Biologist*, Salisbury  
CLYDE P. PATTON, *Biologist*, Kinston  
EDWIN V. FLOYD, *Biologist*, Raleigh  
MRS. BEULAH WEAVER, *Senior Stenographer-Clerk*, Raleigh

### FISH HATCHERY SUPERINTENDENTS

CHAS. W. BURNHAM, *Supervising Fish Culturist*, Asheville  
Morrison Hatchery, LEO F. REIGER, Waynesville  
Frank Stedman Hatchery, WRIGHT T. PARKER, Fayetteville  
"Pete" Murphy Hatchery, LUTHER SKAGGS, Acting, Marion  
Boone Hatchery, C. E. SMATHERS, Boone  
Roaring Gap Hatchery, GUY C. WALLACE, Roaring Gap

### DIVISION OF MINERAL RESOURCES

JASPER L. STUCKEY, *State Geologist*  
THOMAS G. MURDOCK, *Senior Geologist*  
CURRIE COUNCIL, *Junior Stenographer-Clerk*  
C. C. DAUGHERTY, *Associate Chemist*

### DIVISION OF STATE ADVERTISING

PAUL KELLY, *Chief*  
ROBERT L. THOMPSON, *Manager, News Bureau*  
J. C. BASKERVILL, *Secretary, Governor's Hospitality Committee*  
W. R. BAKER, *Photographer*  
CAROLYN KRAMER, *Senior Stenographer-Clerk*  
MRS. RUTH ROBINSON, *Senior Stenographer-Clerk*  
HAZEL HERNDON, *Junior Stenographer-Clerk*  
HUGH SIMONS, *Junior General Clerk*

### DIVISION OF WATER RESOURCES AND ENGINEERING

T. S. JOHNSON, *Chief Engineer*  
W. H. RILEY, *Assistant Engineer*  
F. E. DAY, *Assistant Engineer*, Asheville  
FRANKIE R. MOOSE, *Junior Stenographer-Clerk*

[REDACTED]

In the death of J. Q. Gilkey, vice chairman of the Board, who passed away on July 3, 1940, the Department of Conservation and Development and the State of North Carolina have suffered the loss of a tireless worker and patriotic citizen.

For 15 years, Mr. Gilkey served in the cause of conservation, two years as a member of the old State Fisheries Commission, and for 13 years as a member of the Board of Conservation and Development. During eight of these years he was vice chairman of the Board.

He valued his membership on the Board of Conservation and Development so highly that he declined an appointment four years ago to a remunerative position with the state in order to continue his connection. He received no compensation from his membership with the Conservation Board, but devoted his time freely to its business and initiated and helped carry through numerous projects of primary value to the state. One of these was the Mount Mitchell Game Refuge and associated developments.

The Board and Department acknowledge with profound gratitude the service of this public-spirited citizen.

[REDACTED]



## REPORT OF DIRECTOR

Our generation faces a new day and a rapidly changing world. To cope with the situation demands an adjustment of our policies to meet present and future trends.

Never before in the history of man has there been such a drain on the natural resources of this country and the world as is being made today. In addition to increased demands derived from a natural growth of population, a call for an unprecedented preparedness program exacts a toll of almost incalculable volume from our natural and human resources.

Facing such a situation, we should give pause and take stock of the basic raw materials of our state and nation. Are they to be ravished without thought of the morrow and our future needs or will they be so used as to insure future needs for the maintenance of our strength and security?

Wasteful practices of the past have jeopardized the productiveness of some of our natural resources and have thus reduced, in some places, vast reservoirs of wealth to a mere pittance of our virgin stock. Only within the last comparatively few years has there seemed to appear a proper concern over the condition of the God-given raw materials at our command.

America's greatness was made possible by the vast store of natural wealth which was found on this continent. These resources, our forefathers and we, ourselves, have used without due concern for the future. To remain great and powerful, our country and state must guarantee this and future generations the unimpaired use of our natural resources.

Conservation may correctly be termed our second line of national defense, and unless we face this challenge squarely and courageously, we shall be guilty of undermining the security of our country and our ability to defend those blessings and liberties which have been so hard-earned by our ancestors.

History records numerous instances of nations which have lost positions of dominance in the world through neglect of their resources, and have as a result paid heavy tolls in wealth and human happiness. A tragic example is China where a high form of civilization existed before the beginning of the Christian era. This country still pays a high price for the denuding of her watersheds, permitting huge floods to descend upon the low countries, destroying countless millions of dollars worth of property and, worst of all, a fearful price in human life.

Future generations will rightly be able to condemn our lack of responsibility, if, by neglect we permit the ravaging of those basic resources which are the foundation of our wealth and strength. It is the fundamental right of those who come after us to demand that our storehouses of natural wealth be unimpaired for their use, thus guaranteeing the continued greatness and strength of our country.

As the public agency responsible for leadership and the administration of laws governing the conservation of the natural resources, the Department of Conservation and Development rededicates itself to this task, confident that a well done job will bear material fruits of prosperity and happiness to the people of the state.

It should be kept in mind, however, that bringing about sound conservation practices, under ordinary circumstances, is a long-time and continuous undertaking. However, extraordinary conditions emphasize the urgency of the program and should, in the long run, reflect material progress.

*Office Space:* In December 1938, the Department of Conservation and Development moved into office space in the New State Office Building at the corner of Salisbury and Edenton streets in Raleigh. One floor (the second) was allotted to the Department and also about one quarter of the basement was made available for storage.

For the first time since the creation of the Department all offices in Raleigh are under the same roof. It is difficult to estimate the saving in time and general efficiency which has resulted from the consolidation of the office space.

Formerly, at least a day was required for a personal contact with all the Divisions of the Department, with the offices scattered in seven different buildings and with storage space in still another. The Department considers itself fortunate in being assigned space in the new building, which, incidentally, is constructed of North Carolina granite.

### MISCELLANEOUS ACTIVITIES

*Historical Markers:* More progress has been made during the two-year period covered by this report toward the marking of points of historical interest in the state than during any similar period since the inauguration of the program.

Up to the beginning of the current biennium, 140 markers had been completed. During the last two years, 219 additional plates have been finished, bringing the grand total to date to 359.

The project has moved along much more rapidly and satisfactorily after some of the early kinks were removed. First of the series (G-1) was placed in Stovall, Granville County, on January 10, 1936. Historians believe that several hundred plates, in addition to the 359 authorized or erected, should be provided to complete the program.

Toward the close of the biennium, a booklet presenting a key to markers completed up to that time was issued coöperatively by the Department of Conservation and Development and the State Historical Commission. This publication listed 294 markers, with their inscriptions and locations.

So far as is known to the Department, the North Carolina historical marker program is distinctive in at least one phase of its operations, which incidentally assures it of the best of historical talent available in the state. This distinction consists of an advisory group of historians chosen from the faculties of some of the state's leading educational institutions who serve without compensation in a purely voluntary capacity.

The group consists of the following: Profs. F. W. Clonts and G. W. Paschal, Wake Forest College; Prof. F. W. Johnston, Davidson College; Profs. D. A. Lockmiller and L. W. Barnhardt, State College; Profs. R. H. Woody and J. C. Robert, Duke University; and Profs. A. R. Newsome, H. T. Leffer, and Cecil Johnson, University of North Carolina. This group, together with C. C. Crittenden, secretary, State Historical Commission, and Miss Marybelle Delamar, researcher, selects each point to be marked and approves each inscription.



Each member of the committee deserves hearty appreciation for his contribution.

*Air Marking:* Late in 1938, the Department of Conservation and Development, as sponsor, launched a Works Progress Administration project for marking various cities and towns of the state for the benefit of air commerce. Funds for the sponsor's contribution were furnished through the Council of State at the request of Gov. Clyde R. Hoey.

In 1939 when the project faced suspension because of the exhaustion of state funds, the Junior Chamber of Commerce came to the rescue by the purchase of a truck which has been used since that time. The Junior Chamber of Commerce became co-sponsor and has later made other contributions to keep the project moving. This organization of public-spirited young men merits the commendation of the state for its valuable contribution to this essential work.

Through June 30, 1940, a total of 327 direction and location signs have been painted on suitable backgrounds (primarily the roofs of buildings in strategic locations). Originally, the first project called for 200 markers, but when this program was completed, it was decided to go ahead with additional markers, and finally the project was expanded to include markers in all towns in the state where facilities are available. The total number will probably run to 400 or more.

The markers are done in letters 12 feet high, nine feet wide, and with a six-foot stroke, plainly visible from a height of 3,000 feet. With the rapid expansion of National Defense efforts the signs have become doubly useful, and have been credited with preventing already a number of crack-ups and possibly the saving of several lives.

So far, the state has contributed some \$1,800 through the good offices of Governor Hoey, while the WPA has furnished about \$40,000 for the project.

Under the direction of a special Committee on Aeronautics authorized by the Board of Conservation and Development, model legislation designed to sponsor the development of aviation in the state and for protective regulation of the industry was drawn up for presentation to the General Assembly of 1939. Owing to the untimely death of the chairman of the committee, Elmer C. Meyers, early during the session of the legislative body, the bill was not introduced. Mr. Meyers was an outstanding leader in the industry and through his efforts the viewpoints of those engaged in aviation were consolidated and it is believed that the proposed measure would have had general support among those primarily affected. The thought of offering this or some similar bill before the General Assembly of 1941 has been revived, and it is probable that it may be followed up.

*Airway Map:* Another aid to aviation being promoted through the Department is an airway map of North Carolina which is being prepared by the State Writers' Project of the Works Progress Administration.

This map will spot all of the air fields in the state (government, commercial or municipal, intermediate and auxiliary), various radio range beacons with their magnetic bearings as well as various beacons of other types, runways and their shapes, lighting facilities, radio stations with their call letters and frequency, facilities at the fields, highways, railways, lookout towers, and other features.

It is planned to make these maps available for general distribution to any person interested in aviation. Plans are to bring the map from the press about the first of the year or shortly thereafterwards.

*State Guide:* After some four years of assembling, sifting, checking, and re-writing on the part of the State Writers' Project of the Works Progress Administration, the State Guide which was titled "North Carolina: A Guide to the Old North State," was published in September, 1939, under sponsorship of the Department of Conservation and Development.

This 600-page volume is said to be the most complete compendium of information collected to date on the State of North Carolina. It has been described as a "coördinated picture of the state in all its manifold aspects."

The book is divided into three principal parts—general background, cities and towns, and tours, containing a historical, economic, social, and scenic description of the state, together with a calendar of events and chapters on the natural setting, Indians, history, negroes, agriculture, modes of travel, industry, labor, public education, religion, sports and recreation, folkways and folklore, eating and drinking, the arts and architecture.

More than half of the volume is devoted to thirty-three motor tours in which every possible feature and spot of interest is described. Its value as a text book, reference work, and guide to the state has received general recognition both in North Carolina and through the country generally.

Although the Department would like to distribute the book generally, this was not found practicable in view of the large investment involved in publication and an agreement with the Works Progress Administration, and the University of North Carolina Press, publisher, that a specified price per copy would be charged. The latter organization is to be commended for its public spirit prompting the issue of several thousand copies in addition to the order of the Department. These have received wide distribution and have contributed to the advancement of the state.

### NEW YORK WORLD'S FAIR EXHIBIT

The Special Session of the General Assembly of 1938 made an appropriation of \$75,000 for an exhibit at the World's Fair in 1939 at New York. To this appropriation was added several thousand dollars in public subscriptions.

As members of the Commission, Gov. Clyde R. Hoey appointed the following: W. E. Fenner, Rocky Mount; John W. Caffey, Greensboro; J. Q. Gilkey, Marion; Coleman W. Roberts, Charlotte; and E. G. Flanagan, Greenville; R. Bruce Etheridge, Director, Department of Conservation and Development, ex-officio. Mr. Fenner was elected chairman and Mr. Caffey, secretary.

With this commission, the Department of Conservation and Development has coöperated fully, particularly in the execution of policies set down by the commission. Mr. Roberts was appointed exhibit director and supervised the planning and installation of the exhibit. After the completion of the exhibit, Mr. Roberts retired from this position and for the remainder of the first year Mr. Fenner gave the display his personal attention.

A balance was carried over from the appropriations and private donations from the first year and with a small addition made available on the recommendation of Governor Hoey by the Council of State, the exhibit was carried over into the second year. With the assistance of the School of Engineering of North Carolina State College and the Department of Conservation and Development,



opment, some additions and improvements were made in the 1940 exhibit. Mr. Fenner, as chairman of the Commission, personally supervised the changes, and has been in direct charge of the exhibit during the second year.

Proposals have been made to bring the exhibit back to North Carolina at the close of the Fair for permanent display in the state. This will entail the provision of suitable space and perhaps a small appropriation.

### CAPE HATTERAS NATIONAL SEASHORE

Creation of the Cape Hatteras National Seashore Commission was authorized by the General Assembly of 1939 for the purpose of acquiring lands required by the National Park Service for the establishment of the Cape Hatteras National Seashore.

This area, to be the first of its kind established in the country, has been approved by Congress for administration by the National Park Service as soon as a minimum of 10,000 acres has been acquired by the state and turned over to the Federal government.

Cape Hatteras and that narrow sand barrier reef north and south thereof were chosen by the National Park Service for the federal reservation from available areas along the coast of the entire country. Although not the same in all particulars as a National Park, the National Seashore will be closely allied in development and administration to the great National Parks of the country.

Such significance was attached to the new type of development by the National Park Service as to warrant the adoption of a special policy in the selection, development, and operation of the Cape Hatteras area and others which might be acquired later. Primarily a recreational area, the proposed National Seashore will offer scenic and historical features equally as important. Under federal ownership, it is expected that all existing features will be carefully preserved and others developed for the benefit of all the people of the country.

Cape Hatteras National Seashore will be a companion attraction to the Great Smoky Mountains National Park at the opposite end of the State. The two reservations are expected to be complementary to each other. They can in no way be considered as competing attractions because of their radically different appeals and natures.

Proposed area of the National Seashore extends from a point four and one-third miles north of Currituck Beach Lighthouse southward through Ocracoke Island and including Colington, Roanoke, Bodie and Chicamacomico Islands. Cape Hatteras State Park, now under development, lies within the boundaries of the Seashore, and will be incorporated therein under authority of a special act of the General Assembly.

The State Commission charged with obtaining the necessary area is composed of nine members, including the Director of the Department of Conservation and Development as chairman ex-officio and three members of the Department's Board. Members named by Governor Hoey are as follows: Mrs. James H. R. Cromwell, Somerset, N. J.; Mrs. J. A. Buchanan, Durham; Van Campen Heilner, New York City; Former Governor J. C. B. Ehringhaus, Raleigh; Santford Martin, Winston-Salem; Coleman W. Roberts, Charlotte; and Josh L. Horne, Rocky Mount. The Commission elected Frank Stick, Manteo, as secretary.



Only a small appropriation was made to the Commission for the purpose of paying operating expenses, surveys, reports, etc., and none is available for the purchase of land. As a consequence, success in the establishment of the National Seashore depends upon donations of land and cash. Several landowners are reported to have signified their willingness to donate their holdings and others are expected to follow shortly.

## RECOMMENDATIONS

*Forestry and Game Funds:* Protection of forests against their arch enemy, fire, is one of the most important basic duties of the Department of Conservation and Development. To prevent and control forest fires is vital to the future economic stability of the State, as well as to esthetic values which cannot be measured in terms of dollars and cents.

In the Department's budget request of 1939, an appropriation of \$81,000 was asked for forest fire protection. This amount would have been ample for the purpose, but an appropriation of only \$35,045 was made available.

In view of the fact that the appropriation was considerably below the amount required for adequate forest fire protection, and since the protection of cover and food supply from fire is considered a fundamental game conservation measure, the Board of Conservation and Development allotted \$8,750 from the game fund for the first year of the biennium, and \$11,250 the second year. The latter amount is to be reduced by about \$4,000 for next fiscal year.

However, it is felt for the best interests of the conservation program that further game funds should not be used in the forest fire protection work. Moreover, forest fire protection is so essential to the general welfare of the State as to warrant more adequate provisions from the general funds. We earnestly recommend that an appropriation in keeping with the essential needs of the forestry program be provided by the General Assembly of 1941.

*Stream Pollution:* As North Carolina becomes increasingly industrialized, the problem of disposal of wastes from manufacturing operations becomes intensified.

The Department of Conservation and Development for a number of years has called attention to the situation and has urged that proper consideration be given to the problems arising therefrom. It is time that the proposition be faced frankly with the interests of the public in mind.

Realizing that problems of serious import to various communities and the State are involved, it is recommended that all interests involved, including the various State agencies concerned, manufacturers, and the public be brought together for a study of pollution problems and for the purpose of coördinating their efforts in working out a policy which would be fair to all with the least hardship possible on any group.

*Commercial Fisheries:* Increasingly severe drains upon the fishery resources of the State emphasize the demand for greater protection for the industry and development of the resource wherever possible.

Surveys of the coastal waters of North Carolina have revealed that there are some 1,000,000 acres of sound bottoms capable of producing oysters and other shellfish but that only about 10,000 or 12,000 acres are now furnishing the entire crop.

Experiences in other States have shown that the best quality oysters are produced on areas over which a systematic cultural program is carried on. Limited operations in North Carolina prove that the best and most dependable oyster crops are furnished from beds where cultural methods are used. Unless such methods are introduced and adopted on a large scale the oyster industry has little hopes of indefinite survival and none of utilizing this great natural resource to advantage.

The Board of Conservation and Development has proposed a series of oyster cultivation demonstrations to prove what can be accomplished toward growing a larger and better crop of shellfish. We heartily recommend that an appropriation be provided for this purpose and also that the limit of bottoms which may be leased be increased to permit oyster farming on an economical scale.

*Aviation:* Efforts have been made from time to time toward providing a more stable base for the development of aviation in North Carolina, but for various reasons no tangible results have been accomplished to date.

In July 1937, the Board of Conservation and Development authorized the appointment of a special committee of public spirited citizens interested in aviation to make a study of the needs of the industry and to make a report of its findings.

The study was made and conclusions were embodied in a bill prepared for introduction in the General Assembly of 1939, but this bill was not offered owing to the death of the chairman of the committee, Elmer C. Meyers. It is recommended that legislations embodying the needs of the industry be given consideration by the General Assembly of 1941.

*New York World's Fair Exhibit:* Only a limited number of North Carolinians have had an opportunity to see the North Carolina exhibit which has been in place at this Fair for two years.

It is recommended that some means be provided for bringing this exhibit back to the State for permanent display. With the materials in the display as a nucleus, the importance of the resources of the State and the possibilities of development can be emphasized in the minds of North Carolinians.

APPROPRIATION DIVISIONS  
STATEMENT OF RECEIPTS AND DISBURSEMENTS  
Biennium 1938-1940

	1938-39	1939-40
<b>I. ADMINISTRATION:</b>		
<i>Board of Conservation and Development:</i>		
Attending Meetings.....	\$ 259.03	\$ 264.41
<i>Director's Office:</i>		
Salary, Director.....	6,000.00	6,000.00
Salaries, Staff.....	7,424.17	7,587.51
Salary, Janitor-Messenger.....	786.25	780.00
Office Supplies.....	346.21	315.12
Stationery and Supplies.....	97.42	93.19
Postage and Box Rent.....	407.00	420.00
Telephone and Telegraph.....	264.02	294.77
Express, Freight, Drayage.....	27.04	74.62
Field Travel.....	727.81	923.54
Printing Forms.....	208.58	164.43
Printing Publications.....	3,148.13	31.94
Repairs, Equipment.....	99.70	122.48
General Expense.....	361.05	199.56
Fair Exhibits.....	69.72	
Office Equipment.....	294.23	367.74
TOTAL.....	\$ 20,520.36	\$ 17,639.31
Less Estimated Receipts:		
Sale of Publications.....	65.68	184.50
APPROPRIATION.....	\$ 20,454.68	\$ 17,454.81
<b>II. COMMERCE AND INDUSTRY:</b>		
Salaries and Wages.....	\$ 4,680.00	\$ 7,260.00
Office Supplies.....	122.88	81.23
Postage, Telephone and Telegraph.....	398.14	940.64
Field Travel.....	1,634.33	2,771.91
Printing.....	5,256.13	90.01
General Expense.....	225.00	305.00
Equipment.....	157.04	155.68
TOTAL.....	\$ 12,473.52	\$ 11,604.47
Less Estimated Receipts:		
Sale of Publications.....	2,534.00	463.00
APPROPRIATION.....	\$ 9,939.52	\$ 11,141.47
<b>III. WATER RESOURCES:</b>		
Salary, Chief Engineer.....	\$ 1,320.00	\$ 1,320.00
Salaries, Staff.....	7,168.50	5,952.00
Salaries, Extra.....	683.75	780.00
Office Supplies.....	126.53	50.06
Engineering Supplies.....	261.49	249.81
Materials.....	137.53	122.70
Postage and Box Rent.....	80.30	50.72
Telephone and Telegraph.....	65.97	9.81
Field Travel.....	1,428.91	984.30
Printing Forms.....	27.87	-8.40



STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
<b>III. WATER RESOURCES—<i>Continued</i>:</b>		
Printing Publications.....	\$ 1,123.49	\$ -----
Duplicating Service.....	82.80	82.58
Motor Vehicle Operation.....	941.04	1,138.15
Repairs, Office Equipment.....	33.79	96.99
Repairs, Field Equipment.....	51.47	10.27
Coöperation, U. S. Geological Survey.....	3,505.95	5,498.32
Subscription and Dues.....	-----	18.00
Office Equipment.....	58.00	83.54
Engineering Equipment.....	27.06	117.55
Water Resources Laboratory.....	1,499.82	-----
TOTAL.....	\$ 18,624.27	\$ 16,556.40
Less Estimated Receipts:		
Private Coöperation.....	1,629.56	976.75
APPROPRIATION.....	\$ 16,994.71	\$ 15,579.65
<b>IV. MINERAL RESOURCES:</b>		
Salary, State Geologist.....	\$ 3,438.00	\$ 2,865.00
Salaries, Staff.....	3,167.00	3,292.50
Supplies and Materials.....	138.80	131.40
Postage and Telephone.....	176.00	114.20
Field Travel.....	522.44	560.35
Motor Vehicle Operation.....	758.82	791.33
Printing.....	50.30	-----
Equipment.....	748.63	—22.94
General Expense.....	-----	83.86
APPROPRIATION.....	\$ 9,000.99	\$ 7,815.70
<b>V. FOREST FIRE PREVENTION:</b>		
<i>Administration:</i>		
Salary, Chief of Forest Fire Control.....	\$ 4,125.00	\$ 4,125.00
Salaries, Staff.....	7,470.00	7,370.00
Office Supplies.....	145.05	147.79
Postage.....	315.00	337.00
Telephone and Telegraph.....	78.71	110.83
Express, Freight, Drayage.....	7.23	16.01
Field Travel.....	1,167.42	681.46
Printing Forms.....	362.06	303.44
Motor Vehicle Operation.....	812.59	770.38
Repairs.....	50.14	—12.06
Workmen's Compensation.....	84.95	690.90
Office Equipment.....	134.25	309.26
Miscellaneous Equipment.....	43.65	42.46
Motor Vehicle Exchange.....	1,548.15	1,813.31
TOTAL.....	\$ 16,344.20	\$ 16,675.78
<i>Coöperative Projects:</i>		
Salaries, Fire Wardens.....	\$ 86,048.77	\$ 98,086.79
Expense, Fire Wardens.....	2,165.74	4,248.54

STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
<b>V. FOREST FIRE PREVENTION—<i>Continued</i>:</b>		
<i>Coöperative Projects—Continued:</i>		
Fire Control Equipment.....	\$ 4,907.70	\$ 9,449.95
Repairs, Equipment.....	3,303.85	3,668.53
Lookout Towers.....	203.96	407.32
Telephone Lines.....	911.47	1,188.54
Buildings.....	242.64	545.10
Roads and Fire Lines.....	794.64	1,803.14
Wages, Fire Suppression.....	11,008.91	14,963.08
<b>TOTAL.....</b>	<b>\$ 109,587.68</b>	<b>\$ 134,360.99</b>
<i>District No. 1:</i>		
Salaries, Staff.....	\$ 2,590.42	\$ 2,730.00
Postage and Box Rent.....	46.00	45.99
Telephone and Telegraph.....	157.83	134.57
Field Travel.....	536.20	487.95
Motor Vehicle Operation.....	571.09	493.62
Rents.....	120.00	120.00
<b>TOTAL.....</b>	<b>\$ 4,021.54</b>	<b>\$ 4,012.13</b>
<i>District No. 2:</i>		
Salary, District Forester.....	\$ 2,100.00	\$ 2,300.00
Salaries, Staff.....	3,042.00	3,042.00
Postage and Box Rent.....	52.50	50.70
Telephone and Telegraph.....	151.52	133.86
Field Travel.....	332.06	339.05
Motor Vehicle Operation.....	1,113.29	962.54
Rents.....	120.00	120.00
<b>TOTAL.....</b>	<b>\$ 6,911.37</b>	<b>\$ 6,948.15</b>
<i>District No. 3:</i>		
Salaries, Staff.....	\$ 2,830.00	\$ 2,851.80
Postage and Box Rent.....	38.00	43.00
Telephone and Telegraph.....	73.20	114.03
Field Travel.....	127.33	309.81
Motor Vehicle Operation.....	448.76	550.89
<b>TOTAL.....</b>	<b>\$ 3,517.29</b>	<b>\$ 3,869.53</b>
<i>District No. 4:</i>		
Salary, District Forester.....	\$ 2,100.00	\$ 2,100.00
Salaries, Staff.....	2,602.00	2,760.77
Postage and Box Rent.....	78.00	63.00
Telephone and Telegraph.....	97.39	160.34
Field Travel.....	280.34	212.45
Motor Vehicle Operation.....	825.71	840.74
Lights.....	---	1.50
Rents.....	50.00	---
<b>TOTAL.....</b>	<b>\$ 6,033.44</b>	<b>\$ 6,138.80</b>

STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
<b>V. FOREST FIRE PREVENTION—<i>Continued</i>:</b>		
<i>District No. 5:</i>		
Salary, District Forester.....	\$ 2,080.00	\$ 2,100.00
Salaries, Staff.....	2,363.67	2,315.00
Postage and Box Rent.....	60.00	49.00
Telephone and Telegraph.....	118.47	135.93
Field Travel.....	447.02	413.13
Motor Vehicle Operation.....	718.58	712.96
Electric Current.....	8.80	9.60
Rents.....	100.00	100.00
<b>TOTAL.....</b>	<b>\$ 5,896.54</b>	<b>\$ 5,835.62</b>
<i>District No. 6:</i>		
Salary, District Forester.....	\$ 2,754.00	\$ 2,754.00
Salaries, Staff.....	2,652.00	3,873.00
Postage and Box Rent.....	75.00	75.00
Telephone and Telegraph.....	123.38	125.36
Field Travel.....	626.93	691.42
Motor Vehicle Operation.....	1,082.79	1,409.86
Lights.....	278.00	9.00
<b>TOTAL.....</b>	<b>\$ 7,592.10</b>	<b>\$ 8,937.64</b>
<b>TOTAL REQUIREMENTS.....</b>	<b>\$ 159,904.16</b>	<b>\$ 186,778.64</b>
Less Estimated Receipts:		
Federal Cooperation.....	66,696.00	69,196.00
County Cooperation.....	43,002.64	59,784.70
Private Cooperation.....	5,592.38	10,619.84
Donation, Game Fund.....	8,750.00	11,250.00
<b>TOTAL RECEIPTS.....</b>	<b>\$ 124,041.02</b>	<b>\$ 150,850.54</b>
<b>APPROPRIATION.....</b>	<b>35,863.14</b>	<b>35,928.10</b>
<b>VI. GENERAL FORESTRY:</b>		
Salary, State Forester.....	\$ 3,438.00	\$ 3,438.00
Salaries, Staff.....	1,242.00	1,242.00
Office Supplies.....	56.98	124.53
Postage.....	100.00	60.00
Telephone and Telegraph.....	40.31	38.05
Field Travel.....	65.97	196.27
Printing Forms.....	46.03	44.27
Printing Publications.....	85.48	20.68
Office Equipment.....	112.40	25.00
<b>APPROPRIATION.....</b>	<b>\$ 5,187.17</b>	<b>\$ 5,188.80</b>
<b>VII. STATE FORESTS AND PARKS:</b>		
Salary, Assistant Forester.....	\$ 2,760.00	\$ 2,760.00
Salaries, Staff.....	3,420.00	10,557.56
Labor.....	670.54	1,489.30
Supplies and Materials.....	66.83	1,141.95
Postage.....	27.00	116.05
Telephone and Telegraph.....	49.23	113.84



STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
VII. STATE FORESTS AND PARKS— <i>Continued</i> :		
Express and Drayage.....	\$.....	\$ 4.50
Field Travel.....	213.22	760.59
Printing.....	36.18	102.38
Motor Vehicle Operation.....	804.33	1,344.04
Lights and Power.....	125.79	379.47
Repairs.....	133.61	600.23
General Expense.....	458.95	390.14
Fire Insurance.....	73.30	42.87
Equipment.....	931.23	5,178.09
Motor Vehicle Exchange.....		2,355.06
Purchase of Filter System.....	6,619.00	
Construction of Roads and Trails.....		616.33
Buildings and Other Structures.....		7,249.59
Water and Sewer Systems.....		1,352.32
Stores for Resale.....		4,068.75
TOTAL.....	\$ 16,389.21	\$ 40,623.06
Less Estimated Receipts:		
Permits, State Lakes.....	86.30	67.75
Park Concessions.....	2,130.37	7,036.08
TOTAL RECEIPTS.....	\$ 2,216.67	\$ 7,103.83
APPROPRIATION.....	\$ 14,172.54	\$ 33,519.23
VIII. FOREST MANAGEMENT AND PLANTING:		
Salary, Assistant Forester.....	\$ 3,300.00	\$ 3,300.00
Salaries, Staff.....	2,256.00	4,236.00
Labor.....	473.00	1,572.55
Office Supplies.....	25.41	13.65
Nursery Supplies.....	1,510.54	1,399.90
Postage.....	50.00	126.06
Telephone and Telegraph.....	28.94	64.30
Express and Drayage.....	91.06	172.30
Field Travel.....	210.82	807.86
Printing.....	29.35	93.52
Motor Vehicle Operation.....	584.97	1,199.01
Lights.....	50.04	117.03
Repairs.....	141.61	34.12
General Expense.....		76.25
Fire Insurance.....	75.10	111.50
Equipment.....	1,508.01	1,379.59
Wells.....	209.74	
Purchase of Land.....	—683.40	
Additions, Clayton Nursery.....		3,154.00
TOTAL.....	\$ 9,861.19	\$ 17,857.64
Less Estimated Receipts:		
Federal Cooperation.....	2,112.00	1,332.88
Sale of Seedlings.....	4,428.81	5,060.16
TOTAL RECEIPTS.....	\$ 6,540.81	\$ 6,393.04
APPROPRIATION.....	\$ 3,320.38	\$ 11,464.60

STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
IX. OTHER:		
Air Commerce Markers.....	\$ 1,050.00	\$ 1,043.00
Less Estimated Receipts.....		292.31
	\$ 1,050.00	\$ 750.69
Donation for Ceremony Smoky Mountains National Park.....	1,000.00	
TOTAL REQUIREMENTS.....	254,010.87	305,107.02
LESS ESTIMATED RECEIPTS.....	137,027.74	166,263.97
APPROPRIATION.....	\$ 116,983.13	\$ 138,843.05

STATE ADVERTISING DIVISION  
STATEMENT OF RECEIPTS AND DISBURSEMENTS  
Biennium 1938-1940

	1938-39	1939-40
ADVERTISING:		
Salaries.....	\$ 18,190.27	\$ 13,017.67
Supplies and Materials.....	2,794.93	1,648.81
Postage and Box Rent.....	5,373.47	4,926.70
Telephone and Telegrams.....	999.21	966.24
Express, Freight, Drayage.....	252.54	349.91
Field Travel.....	3,279.15	2,998.78
Printing Forms.....	4,182.74	2,959.94
Printing Publications.....	8,694.58	5,589.02
Repairs, Equipment.....	125.59	55.41
Committee Meetings.....	53.50	34.00
Contract Advertising.....	85,293.27	65,529.98
Exhibits.....	697.59	
General Expense.....	826.10	917.34
Equipment.....	999.04	756.20
APPROPRIATION.....	\$ 131,761.98	\$ 99,750.00

DIVISION OF GAME AND INLAND FISHERIES  
STATEMENT OF RECEIPTS AND DISBURSEMENTS  
Biennium 1938-1940

	1938-39	1939-40
<b>VII. INLAND FISHERIES:</b>		
<i>Administration:</i>		
Salary, Supervisor.....	\$ 1,512.00	\$ 1,512.00
Salaries, Protectors.....		26,628.00
Supplies and Materials.....	1,667.08	158.11
Postage, Telephone.....	121.16	137.89
Field Travel.....	950.90	1,468.40
Printing Forms.....	845.35	869.00
Publicity Service.....		43.85
Coöperation, U. S. Bureau of Fisheries.....	96.74	
General Expense.....	48.83	
Fire Insurance.....	283.78	358.50
Office Equipment.....	290.59	325.97
<b>TOTAL.....</b>	<b>\$ 5,816.43</b>	<b>\$ 31,501.72</b>
<i>Morrison Hatchery:</i>		
Salary, Superintendent.....	\$ 1,512.00	\$ 1,512.00
Salaries, Staff.....	1,320.00	1,320.00
Extra Labor.....	80.00	
Supplies.....	4,437.95	5,809.24
Postage.....	12.80	12.80
Telephone and Telegraph.....	54.03	66.51
Field Travel.....	54.20	44.30
Motor Vehicle Operation.....	713.19	839.32
Lights and Power.....	68.56	77.65
Repairs, Buildings.....	64.51	91.36
Repairs, Equipment.....	2.25	17.35
Hatchery Equipment.....	230.72	104.05
Building Pools.....	4,818.41	1,451.80
Building Water Line.....	1,142.75	
Buildings.....	3,201.93	997.31
Motor Vehicle Exchange.....	548.25	
Water Rights.....	100.00	
<b>TOTAL.....</b>	<b>\$ 18,361.55</b>	<b>\$ 12,343.69</b>
<i>Murphy Hatchery:</i>		
Salary, Superintendent.....	\$ 1,368.00	\$ 114.00
Salaries, Staff.....	780.00	800.00
Extra Labor.....	37.50	350.25
Supplies and Materials.....	2,476.65	1,987.52
Postage.....	2.25	5.04
Telephone and Telegraph.....	37.19	40.77
Field Travel.....		48.30
Motor Vehicle Operation.....	324.01	498.97
Repairs, Buildings.....	164.20	106.22
Repairs, Equipment.....	15.38	66.91
Hatchery Equipment.....	24.64	128.13
Motor Vehicle Exchange.....		356.25
<b>TOTAL.....</b>	<b>\$ 5,229.82</b>	<b>\$ 4,502.36</b>



STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
<b>VII. INLAND FISHERIES—<i>Continued</i>:</b>		
<i>Stedman Hatchery:</i>		
Salary, Superintendent.....	\$ 1,248.00	\$ 1,248.00
Salaries, Staff.....	970.42	960.00
Extra Labor.....	311.50	593.38
Supplies and Materials.....	1,014.64	933.57
Postage.....	3.00	6.10
Telephone and Telegraph.....	190.17	140.61
Field Travel.....	86.20	86.61
Motor Vehicle Operation.....	1,011.69	1,501.10
Lights and Power.....	181.77	193.79
Repairs, Buildings.....	63.23	246.95
Repairs, Equipment.....	94.17	74.68
Hatchery Equipment.....	269.13	657.27
Building Pools.....	1,671.94	1,235.74
Buildings.....	3,456.76	126.21
TOTAL.....	\$ 10,572.62	\$ 8,004.01
<i>Roaring Gap Hatchery:</i>		
Salary, Superintendent.....	\$ 1,320.00	\$ 1,320.00
Salaries, Staff.....	685.00	720.00
Extra Labor.....	24.00	-----
Supplies and Materials.....	3,190.82	2,975.17
Postage.....	10.00	11.00
Telephone and Telegraph.....	43.10	41.03
Field Travel.....	8.50	1.05
Motor Vehicle Operation.....	305.37	301.43
Lights and Power.....	109.55	143.25
Repairs, Buildings.....	350.74	197.98
Repairs, Equipment.....	22.66	37.44
Hatchery Equipment.....	64.22	52.45
Building Pools.....	1,997.73	186.84
Motor Vehicle Exchange.....	433.31	-----
TOTAL.....	\$ 8,565.00	\$ 5,987.64
<i>Boone Hatchery:</i>		
Salary, Superintendent.....	\$ 1,248.00	\$ 1,248.00
Salaries, Staff.....	630.00	630.00
Extra Labor.....	150.00	30.00
Supplies.....	2,554.58	2,443.05
Postage.....	15.00	15.00
Telephone and Telegraph.....	15.00	-----
Field Travel.....	18.30	17.25
Motor Vehicle Operation.....	668.29	558.03
Repairs, Buildings.....	32.58	321.67
Repairs, Equipment.....	2.40	9.27
Hatchery Equipment.....	34.20	144.87
Buildings.....	-----	265.13
TOTAL.....	\$ 5,368.35	\$ 5,682.27

STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
<b>VII. INLAND FISHERIES—<i>Continued</i>:</b>		
<i>Lake Mattamuskeet:</i>		
Salary, Chief Warden.....	\$ 1,770.00	\$ 1,832.50
Salary, Warden.....	1,020.00	892.50
Supplies and Materials.....	5.25	28.95
Motor Vehicle Operation.....	421.00	422.95
Equipment.....	35.00	631.25
<b>TOTAL.....</b>	<b>\$ 3,251.25</b>	<b>\$ 3,808.15</b>
Purchase of Land.....	7,559.50	
Total Requirements.....	64,724.52	71,829.84
Less Estimated Receipts:		
Sale of Angler's Licenses.....	64,985.58	72,390.57
Balance Preceding Year.....	33,489.52	33,750.58
<b>TOTAL.....</b>	<b>\$ 98,475.10</b>	<b>\$ 106,141.15</b>
<b>BALANCE FORWARD.....</b>	<b>\$ 33,750.58</b>	<b>\$ 34,311.31</b>
<b>VIII. GAME:</b>		
<i>Administration and Enforcement:</i>		
Salary, Commissioner.....	\$ 4,800.00	\$ 4,800.00
Salaries, Staff.....	25,195.50	25,907.00
Salaries, Protectors.....	128,725.67	100,074.97
Stationery and Supplies.....	1,003.06	1,059.45
License Buttons.....	4,201.79	172.00
Postage.....	1,217.69	996.41
Telephone and Telegraph.....	1,957.70	2,583.10
Express and Drayage.....	422.43	337.33
Field Travel.....	17,866.87	18,493.34
Printing Forms.....	2,830.26	3,514.89
Printing Publications.....	386.12	
Motor Vehicle Operation.....	2,579.67	4,580.48
Repairs, Equipment.....	16.85	77.75
General Expense.....	1,397.95	3,248.21
Typing Records.....	130.45	148.60
Publicity Service.....	105.89	95.96
Legal Costs.....	257.00	16.40
Subscription and Dues.....	30.00	38.00
Insurance and Bonding.....	1,597.85	1,291.56
Equipment.....	2,088.71	650.69
Motor Vehicle Exchange.....		1,290.75
<b>TOTAL.....</b>	<b>\$ 196,811.46</b>	<b>\$ 169,376.89</b>
<i>Game Farms and Refuges:</i>		
<i>Game Farm—Fayetteville:</i>		
Salary, Superintendent.....	\$ 1,500.00	\$ 1,500.00
Salaries, Staff.....	2,028.00	1,905.00
Extra Labor.....	742.00	1,298.00
Supplies and Materials.....	3,156.06	2,685.84
Field Travel.....	24.25	83.95

STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
VIII. GAME— <i>Continued:</i>		
Game Farms and Refuges— <i>Continued:</i>		
Game Farm—Fayetteville— <i>Continued:</i>		
Motor Vehicle Operation.....	\$ 483.45	\$ 869.60
Lights and Power.....	204.76	234.00
Repairs.....	469.31	298.31
Equipment.....	449.82	196.00
Brooders and Lay Pens.....	2,849.21	428.30
Building Fences.....	31.50	-----
Buildings.....	698.85	285.90
TOTAL.....	\$ 12,637.21	\$ 9,784.90
Game Farm—Pine Forest:		
Salary, Supervisor.....	\$ 2,400.00	\$ 2,400.00
Salaries, Staff.....	741.30	625.00
Extra Labor.....	498.35	2,858.65
Supplies and Materials.....	1,195.01	2,010.51
Postage, Telephone and Telegraph.....	55.91	35.97
Field Travel.....	32.25	13.15
Motor Vehicle Operation.....	342.03	382.73
Lights and Power.....	72.69	189.36
Repairs.....	294.74	315.85
Equipment.....	1,489.54	1,352.40
Buildings.....	-----	454.44
TOTAL.....	\$ 7,121.82	\$ 10,638.06
Game Farm—Mt. Mitchell:		
Salaries, Keepers.....	\$ 1,213.33	\$ 1,260.00
Supplies and Materials.....	1,354.30	1,001.71
Motor Vehicle Operation.....	295.28	150.00
Repairs.....	246.97	124.15
Equipment.....	81.07	350.87
Buildings.....	463.70	-----
Purchase of Land.....	300.00	-----
TOTAL.....	\$ 3,954.65	\$ 2,886.73
Western Refuges:		
Salary, Superintendent.....	\$ 2,050.00	\$ 2,100.00
Salaries, Staff.....	11,442.00	12,036.50
Supplies.....	56.68	39.45
Purchase of Game.....	-----	248.01
Postage, Telephone and Telegraph.....	149.00	35.59
Field Travel.....	262.84	337.95
Printing.....	24.25	187.67
Motor Vehicle Operation.....	1,202.99	1,418.62
Rents.....	110.00	30.00
Equipment.....	141.02	284.43
TOTAL.....	\$ 15,438.78	\$ 16,718.22



STATEMENT OF RECEIPTS AND DISBURSEMENTS—Continued  
Biennium 1938-1940

	1938-39	1939-40
VIII. GAME—Continued:		
<i>P. R. Camp Refuge:</i>		
Salary, Warden.....	\$ 510.00	\$ 212.50
Rents.....	100.00	
TOTAL.....	\$ 610.00	\$ 212.50
<i>Farm Game Program:</i>		
Salary, Senior Biologist.....	\$ 1,900.00	\$ 1,900.00
Salaries, Staff.....	14,817.76	14,481.50
Supplies and Materials.....	502.54	524.56
Postage.....	221.45	89.54
Telephone and Telegraph.....	159.42	268.47
Field Travel.....	2,593.20	2,352.74
Printing Forms, Posters.....	506.17	659.07
Printing Publications.....	997.37	976.76
Motor Vehicle Operation.....	2,899.20	3,081.88
Repairs, Equipment.....	11.71	9.96
Publicity Service.....	1.10	
Office Equipment.....	853.62	280.03
Motor Vehicle Exchange.....	586.00	1,348.45
Rents.....	250.00	
TOTAL.....	\$ 26,299.54	\$ 25,972.96
<i>Pittman-Robertson Projects:</i>		
<i>Wildlife Research Project:</i>		
Salaries and Wages.....		\$ 4,862.00
Supplies and Materials.....		544.45
Field Travel.....		549.36
Motor Vehicle Operation.....		555.23
General Expense.....		422.66
Equipment.....		1,753.44
TOTAL.....		\$ 8,687.14
<i>Holly Shelter Project:</i>		
Salaries and Wages.....		\$ 5,714.67
Labor.....		6,865.50
Supplies and Materials.....		376.91
Postage, Telephone and Telegraph.....		35.85
Field Travel.....		457.26
Printing.....		52.95
Motor Vehicle Operation.....		4,234.93
Lights and Power.....		2.80
General Expense.....		709.06
Equipment.....		14,635.67
TOTAL.....		\$ 33,085.60
<i>Fur Resources Investigation:</i>		
Salaries and Wages.....		\$ 900.00
Supplies and Materials.....		32.19
Postage, Telephone and Telegraph.....		15.84
Field Travel.....		152.95

STATEMENT OF RECEIPTS AND DISBURSEMENTS—Continued  
Biennium 1938-1940

	1938-39	1939-40
VIII. GAME—Continued:		
<i>Fur Resources Investigation—Continued:</i>		
Motor Vehicle Operation.....	\$	147.19
General Expense.....		205.25
Equipment.....		974.89
TOTAL.....	\$	2,428.31
Construction of Duck Ponds.....		2,253.45
Water Impoundment Program.....		1,759.26
Food and Cover Strip Planting.....		1,677.91
John P. Council Deer Refuge.....		517.79
Purchase of Land, Holly Shelter.....		7,346.82
TOTAL PITTMAN-ROBERTSON PROJECTS.....	\$	57,756.28
<i>Miscellaneous Accounts:</i>		
Motor Boats Operation.....	\$ 2,216.44	\$ 1,850.97
Repairs, Sandhill Refuge.....		241.56
Workmen's Compensation.....	449.62	2,865.33
Fire Control Projects.....		1,952.03
Equipment River Patrol.....	107.43	831.45
Equipment, Sandhill Refuge.....		73.10
Donation to Fire Control.....	\$,750.00	11,250.00
Coöperation, U. S. Biological Survey.....	180.50	
Purchase of Land.....	956.30	
Payment of Taxes.....	674.42	
TOTAL REQUIREMENTS.....	\$ 276,208.17	\$ 312,410.98
Less Estimated Receipts:		
Sale of Hunting Licenses.....	277,886.38	259,444.12
Balance Preceding Year.....	27,210.07	28,888.28
Coöperation, Federal Government.....		36,720.60
TOTAL RECEIPTS.....	\$ 305,096.45	\$ 325,053.00
BALANCE FORWARD.....	\$ 28,888.28	\$ 12,642.02
TOTAL REQUIREMENTS.....	\$ 340,932.69	\$ 384,240.82
LESS ESTIMATED RECEIPTS.....	403,571.55	431,194.15
BALANCE FORWARD.....	\$ 62,638.86	\$ 46,953.33

# **DIVISION OF COMMERCIAL FISHERIES**

## **INTRODUCTION**

There is no doubt that commercial fishing merits its proper share of conservation along with other State activities. The Board of Conservation and Development has taken this view and has been consistent and earnest in its efforts toward effecting every reasonable means of protecting the industry through rules and regulations and through its enforcement personnel. If the food values of fish were properly appreciated by the public the demand for this class of meat would soon exceed the supply. It is therefore hoped that properly enforced regulations and effective publicity will increase the supply and demand for our great variety of fin and shellfish.

## **FOOD FISH**

This phase of the industry as a whole employs more people than any other. The first year of this biennium was one of the best seasons we have had for many years and the last half of the second year was the worst, due to the hard winter. We have had an increase in shad at some of the points in the State and a falling off in others. There was a marked increase in production the last year of this biennium but for the two years the catch only amounted to 500,000 pounds more than for the previous like period. The full catch for last biennium was 2,500,000 pounds, this biennium 3,000,000. The Bureau of Fisheries station in Edenton reports that its output has been on an increase. During the season of 1939, 7,136,000 shad were hatched; and 12,000 of these held in the hatchery to reach fingerling size. During the season 1940, 13,250,000 were hatched; and 200,000 were held in the hatchery ponds for rearing and tagging experiments. The herring catch this period was 32,000,000, an increase of 2,000,000 over the last biennium.

## **SHRIMP**

The shrimp has an important place in the economic life of the commercial fishermen. In years past the greatest activity in this fishery was at Southport but for the last several seasons it has been gaining in Pamlico Sound and around Cape Lookout. There was a catch of 4,104,680 pounds this period which was an increase of 799,680 pounds over the last biennium. This industry employs a large number of fishermen who received around \$287,328 for their output this period. There are as many as a thousand people engaged in the industry.

## **MENHADEN**

There are ten menhaden plants in the State, two of which are in Brunswick County and eight in Carteret County, and there is by far more invested in this fishery than there is in all the others. While there are only ninety boats engaged in this activity it takes some fifteen to twenty men to operate a boat. During the last biennium 628,885,000 menhaden were caught, 3,153,000 gallons of oil and 44,019 tons of scrap manufactured. There is invested in this phase of the industry alone \$790,000 in factories, \$550,000 in boats and \$90,000 in nets and equipment. This activity is of tremendous importance to the two counties in which it is pursued.



## OYSTERS

Oystering takes a place of importance in our industry as it starts during the winter season when there are so many of our fishermen out of employment who are able to secure employment through this phase of the industry. The production this biennium was 470,000 bushels which was about the production of the last period. Many more oysters would have been marketed if it had not been for the very severe cold weather last winter. Private cultivation, if not the only way, is certainly a very effective way of building up the oyster industry and one which I have always advocated but our people are slow to venture in this field as it is something they know little about, and for this reason they hesitate to invest in it. At present most of the active oyster beds of the State are located in Onslow and Pender counties.

## CLAMS

Clamming has an unique place in our industry: it is like no other phase of the business for the reason that it requires practically no investment. Any man who has the price of a garden rake, which costs about 75c, can equip himself for clamming. This is one phase of the industry that has gained instead of fallen off in production. Some of our clammers catch as high as ten to twelve bushels of clams a day with these hand rakes with no expense attached. The clams replenish themselves from year to year and require no attention from the Department except protection in the way of closed season and type of equipment used. During the past biennium we marketed 107,802 bushels which was 14,520 bushels more than the previous biennium at a conservative average value of \$1.00 per bushel.

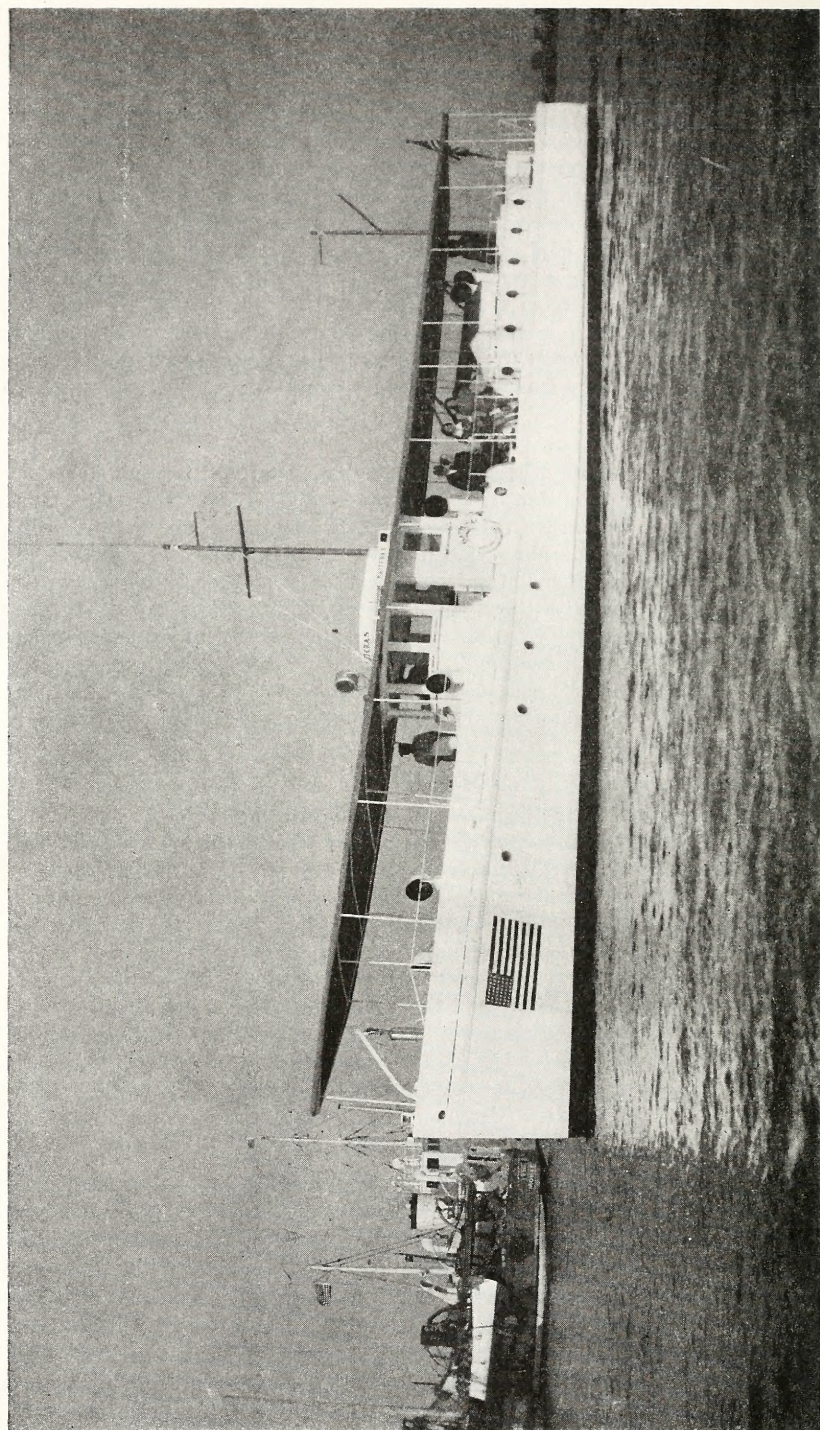
## ESCALLOPS

Escalopping was formerly one of the most important activities of the fishing industry in Carteret County during the winter season. As many as fifteen hundred fishermen have escalloped in Bogue and Core sounds during one season. In addition to the money made by many people shucking and handling them, the escallops sold as high as \$2 to \$4 per gallon; but for the past several years this fishery has fallen off almost to the vanishing point. In 1927 alone 120,940 gallons of escallops were produced as against 9,694 gallons during our last biennium and only 3,185 gallons for this period. The dying out in Bogue and Core sounds of the eel grass to which scallop spat cling until they form a shell was one of the greatest set-backs the fishermen have ever experienced in any one phase of the industry. Its return would be a great boost to the whole industry.

## CRABS

Soft crabs are found all along the coast of the State but not in sufficient quantities to be profitable anywhere except in Carteret County. In this County crabbing is one of the important activities for about two months. The season usually opens anywhere from the middle of March to the first of April, according to the weather, and usually lasts until the first or tenth of May, depending on when the season opens in Maryland. After the season opens in that State crabbing is not profitable for our fishermen for the reason that they are dependent on the Maryland buyers. The crab dealers come from Maryland to this section every season and stay until the season opens in their State.





Patrol boat *Halteras* which protects the three-mile limit along the North Carolina coast against non-resident trawl fishing.

They can buy the crabs cheaper in Maryland because of their greater abundance and the freight rate is also a big factor as it is so much nearer the northern markets. During the current biennium we marketed 115,709 dozen crabs, which was 42,168 dozen less than in the previous period. This decrease was caused by the late and cold spring which made the season short. The hard or blue crab is also a big industry here and the past season they sold for as high as \$8.00 per barrel at times. However, the usual price is about \$1.50. The reason the price was so high this past season is the fact that the cold weather killed the crabs out on the Chesapeake Bay and the dealers had to come here to supply their trade. We had as high as fifteen or twenty trucks here at a time carrying crabs out of our State in the shell. The last biennium the production of hard crabs was around 12,000,000 pounds.

### REPORT OF DISTRICT SANITARIAN

CAPTAIN JOHN A. NELSON,  
*Fisheries Commissioner,*  
Morehead City, N. C.

DEAR CAPTAIN NELSON:

It is a pleasure to submit herewith a report of the various activities conducted by the office of Shellfish Sanitation during the biennium ending June 30, 1940.

Uniform progress has been made in shellfish sanitation during the past two years. The system of grading shellfish plants, adopted several years ago, has been definitely established and through its influence the physical condition of all shucking plants as well as the methods used in handling the products have been greatly improved. Seven new shucking plants and many new shell stock packing plants have been erected to take the place of old plants which would not meet the requirements for certification.

Regular monthly inspections and constant laboratory control work have been carried on in the shellfish industry in order to keep the packing plants in satisfactory condition to meet the requirements of the U. S. Public Health Service for inter-State shipping. During the period an average of 31 shucking plants and 79 shell stock packing plants have operated through which approximately 100,000 bushels of clams and 400,000 bushels of oysters have been handled. The shucking plants have been inspected monthly and the shell stock plants have been inspected at least bi-monthly during open season with a total of 1,007 plant inspections having been made.

In addition to the clam and oyster work, this office has maintained close supervision over the crabmeat packing industry. In coöperation with the U. S. Food and Drug Administration, regular bacteriological and sanitary surveys have been conducted in connection with the 10 crabmeat plants that have operated in North Carolina during this biennium. In connection with the laboratory control work conducted by the U. S. Food and Drug Administration, it is interesting to note that no crabmeat has been condemned and destroyed during this period. For this reason, it is believed that our crabmeat picking plants as well as our oyster and clam plants compare favorably with any on the Atlantic Coast.

Constant supervision over the patrolling of restricted areas has also been maintained, and several individuals have been prosecuted for taking shellfish



from the restricted areas around Morehead City and Beaufort. Due to this strict supervision, no shipments were condemned and destroyed on out-of-State markets.

In concluding this report, I wish to express my appreciation to you and your staff for the assistance and coöperation you have given me in the performance of my duties.

Respectfully submitted,

E. C. HUBBARD, *District Sanitarian,*  
N. C. State Board of Health.

### DIAMOND-BACK TERRAPIN

This was once an important fishery in the State before the days of prohibition but during prohibition days it seemed to have lost its place as a delicacy on the table. Since prohibition has been repealed this generation does not seem to know the sobering effects derived from terrapin soup. A five inch terrapin formerly sold for \$5.00 and \$6.00 a piece and now they are not more than 50c to \$1.00 on the local markets. For several years terrapin have been plentiful in our waters but no one seems to care for them and they are only taken when caught with other fish. The Bureau of Fisheries station at Beaufort, North Carolina, this biennium released 7,477 young terrapin at the following places: Pea Island Refuge, Swan Quarter Refuge, Hatteras and vicinity, Ocracoke Island, Englehard and vicinity and Beaufort and vicinity. Since there has been a hatchery at Beaufort, the Bureau has liberated around 125,000 young terrapin in our waters.

### PATROL BOATS

We have eight boats for patrolling the waters of the State. The *John A. Nelson* is stationed at Morehead, the *Hatteras* at Manteo, Ocracoke, and Morehead. The *Hatteras* is used primarily in patrolling the coast from Beaufort Inlet to the Virginia line for the purpose of keeping out non-resident trawlers. The *Croatan* stationed at Manteo is a new boat built to replace the old *Albemarle* and is used by one of our Assistant Commissioners. Another new boat, the *Albemarle*, purchased to replace the old *Chowan* is stationed at Edenton and is used by an inspector on the Albemarle Sound. The *Neuse* is a small boat used by one of the inspectors at New Bern on the Neuse River. The *Pamlico* is now used by one of our inspectors at Vandemere who is also in charge of one of our smaller gas boats the *Pungo*; another new boat, the *Ocracoke*, is used by one of our inspectors at Belhaven on the Pamlico and Pungo rivers. The *Roanoke* is stationed at Morehead and patrols Bogue and Core sounds. These boats are used in patrolling our waters to enforce our rules and regulations, to collect licenses and taxes and to do occasional experimental work.

# KIND, QUANTITY AND VALUE OF FISH TAKEN IN WATERS OF NORTH CAROLINA

For the Period July 1, 1938 to June 1, 1940

Kind of Fish	No. of Pounds	Value
Spotted Trout.....	2,700,000	\$ 189,000.00
Gray Trout.....	12,600,000	504,000.00
Sea Mullet.....	900,000	27,000.00
Blue Fish.....	810,000	32,400.00
Mullet.....	5,850,000	292,500.00
Croakers.....	10,800,000	216,000.00
Spots.....	9,900,000	297,000.00
Hogfish.....	540,000	16,200.00
Mackerel.....	550,000	38,500.00
Shad.....	3,000,000	750,000.00
Herring.....	32,000,000	480,000.00
Butters.....	910,000	36,400.00
Carp.....	270,000	16,200.00
Rock or Striped Bass.....	540,000	81,000.00
Flounders.....	2,250,000	112,500.00
Puppy Drum.....	540,000	21,600.00
White Perch.....	810,000	48,600.00
Cats.....	600,000	30,000.00
Eels.....	45,000	2,700.00
Jack.....	360,000	18,000.00
Pike.....	20,000	1,000.00
Pompano.....	12,000	1,200.00
Channel Bass.....	140,000	2,800.00
Sturgeon.....	5,000	1,250.00
Sheephead.....	8,100	\$10.00
<b>TOTAL FOOD FISH.....</b>	<b>86,160,100</b>	<b>\$ 3,216,660.00</b>
Shrimp.....	4,104,680	\$ 287,328.00
Menhaden (No. of Fish).....	628,855,000	3,144,275.00
<b>TOTAL VALUE OF FIN FISH.....</b>		<b>\$ 6,648,263.00</b>

## SHELLFISH

Oysters.....	470,000 (bushels).....	\$ 164,500.00
Clams.....	107,802 (bushels).....	134,702.00
Escallops.....	3,185 (gallons).....	6,390.00
Soft Shell Crabs.....	115,709 (dozens).....	115,709.00
Hard Crabs.....	12,000,000 (pounds).....	240,000.00
Diamond-Back Terrapin.....	6,500 (pounds).....	1,300.00
<b>TOTAL VALUE OF SHELLFISH.....</b>		<b>\$ 662,601.00</b>

## TOTALS

Value of Fin Fish.....	\$ 6,648,263.00
Value of Shellfish.....	662,601.00
<b>TOTAL VALUE WATER PRODUCTS.....</b>	<b>\$ 7,310,864.00</b>

**STATEMENT OF RECEIPTS AND DISBURSEMENTS OF THE  
DIVISION OF COMMERCIAL FISHERIES, DEPARTMENT  
OF CONSERVATION AND DEVELOPMENT**

Biennium 1938-1940

	1938-39	1939-40
<b>ADMINISTRATION AND INSPECTION:</b>		
Commissioner's Salary.....	\$ 4,125.00	\$ 4,125.00
Assistant Commissioner's Salaries.....	3,025.00	3,300.00
Commission Employees Salaries.....	6,694.66	7,452.79
Office Staff.....	3,810.00	3,865.00
Supplies.....	116.80	39.49
Postage and Box Rent.....	160.00	169.90
Telephone and Telegrams.....	270.40	325.01
Travel Expense.....	208.95	306.70
Printing and Binding.....	443.51	417.11
Motor Vehicle Operation.....	1,684.80	2,289.55
Office Rent.....	1,000.00	1,000.00
Insurance and Bonding.....	138.00	115.50
Equipment.....	81.00	
Other Sources.....	30.97	87.95
Attorney's Fees.....	25.00	
<b>TOTAL.....</b>	<b>\$ 21,814.09</b>	<b>\$ 23,494.00</b>
<b>PATROL BOATS:</b>		
Salaries and Wages.....	\$ 5,924.50	\$ 6,337.00
Supplies.....	1,119.28	1,452.58
Gas and Oils.....	1,362.90	1,401.61
Repairs.....	1,704.33	1,409.12
Equipment.....	664.23	70.00
Subsistence.....	1,180.00	1,303.50
Docks and Warehouses.....	274.26	340.25
Marking Fishing Limits.....	59.70	372.20
Fire Insurance—Patrol Boats.....	220.00	236.25
Purchase of Patrol Boats.....		3,000.00
<b>TOTAL.....</b>	<b>\$ 12,509.20</b>	<b>\$ 15,922.51</b>
<b>OPERATION BOAT HATTERAS:</b>		
Salaries and Wages.....	\$ 3,227.15	\$ 3,964.50
Supplies.....	944.27	1,135.13
Gas and Oils.....	749.63	860.63
Repairs.....	2,633.98	2,598.28
Equipment.....	148.70	453.14
Subsistence.....	795.00	1,074.00
Docks and Warehouses.....		50.00
<b>TOTAL.....</b>	<b>\$ 8,498.73</b>	<b>\$ 10,135.68</b>
<b>SHELLFISH SANITATION:</b>		
Supplies and Materials.....	\$ 48.37	\$ 95.93
Equipment.....		
<b>TOTAL.....</b>	<b>\$ 48.37</b>	<b>\$ 95.93</b>
<b>TOTAL EXPENDITURES.....</b>	<b>\$ 42,870.39</b>	<b>\$ 49,648.12</b>
<b>LESS RECEIPTS.....</b>	<b>21,825.36</b>	<b>28,400.09</b>
<b>APPROPRIATION.....</b>	<b>\$ 21,045.03</b>	<b>\$ 21,248.03</b>



STATEMENT OF RECEIPTS AND DISBURSEMENTS—*Continued*  
Biennium 1938-1940

	1938-39	1939-40
RECEIPTS:		
Food Fish Licenses and Taxes.....	\$ 7,399.77	\$ 7,775.25
Oyster Licenses and Taxes.....	3,375.96	2,544.66
Escallop Licenses and Taxes.....	156.25	15.50
Clam Licenses and Taxes.....	1,793.84	2,640.05
Crab Licenses and Taxes.....	1,504.16	2,081.58
Menhaden Licenses.....	3,420.00	11,613.75
Power Boat Licenses.....	276.50	248.25
Other Sources.....	3,898.88	1,481.05
TOTAL.....	\$ 21,825.36	\$ 28,400.09

## DIVISION OF COMMERCE AND INDUSTRY

In general, business in the United States during the past two years has proceeded with extreme caution. Unsettled world conditions followed by war in the latter part of 1939, were the chief deterrents.

The above conditions have been somewhat modified in recent months by the active entrance of this country upon an unprecedented program of national military preparedness. The effect upon heavy industries has been instantaneous, with the likelihood that a noticeable pick-up may be experienced in many other types of manufacture. The restraining brake upon all industries not directly or indirectly connected with the national defense program, is the disturbed balance of world trade. It is not felt that the ending of hostilities will aid this condition, but will—on the contrary—make even more acute the problem of commodity exchange and trade adjustment.

The effect the aforementioned conditions will have on the re-location of manufacturing plants and the establishment of new factories, is not clear at this time. Basic and allied war industries must enlarge facilities to keep pace with the greatly increased demand for materials and equipment. In all other industries affected, it is probable that increased orders may take up only a portion of the operating slack experienced through the late years of the depression.

Summarized briefly, the business index for industries affected by the defense program has risen rapidly, but the picture as a whole still has the general appearance of uncertainty.

### INDUSTRIAL PROGRESS REPORT

May 1, 1938 - May 1, 1940

NEW INDUSTRIES		PLANT ADDITIONS	
	No.		No.
<i>Textiles:</i>		<i>Textiles:</i>	
Cotton .....	13	Cotton .....	61
Hosiery .....	77	Hosiery .....	97
Knit Goods.....	7	Knit Goods.....	5
Silk and Rayon.....	2	Silk and Rayon.....	24
Dyeing and Finishing.....	13	Dyeing and Finishing.....	13
Misc. Textiles.....	6	Misc. Textiles.....	8
Food and Kindred Products.....	37	Food and Kindred Products.....	8
Clay, Glass, Stone.....	2	Clay, Glass, Stone.....	1
Chemicals .....	7	Chemicals .....	6
Furniture .....	7	Furniture .....	5
Mine and Quarry.....	14	Leather Goods.....	1
Lumber .....	3	Lumber .....	1
Paper and Printing.....	12	Paper and Printing.....	1
Tobacco Manufacture.....	1	Tobacco Manufacture.....	1
Woodworking .....	2	Woodworking .....	1

Machinery and Parts.....	2	Machinery and Parts.....	2
Misc. Industries.....	28	Misc. Industries.....	4
Non-manufacturing .....	6	Non-manufacturing .....	17
TOTAL 239		TOTAL 256	

The tremendous gains made in the hosiery industry during the past several years was confined largely to the full fashion section, and probably represents the peak of the expansion in this state. Moderate curtailment of the movement began about the middle of 1939, because of a greatly disturbed Japanese silk market, and was further reduced by the European War and the development of new, long-wearing synthetic yarns.

One of the most encouraging facts drawn from the above compilation is the extent of expansion which took place in the industries already established in North Carolina. The continued growth of these industries represents a powerful influence on our economic system, and acts as a convincing index of the progress made by manufacturers locating and operating in the state.

Estimating (There is no way to get absolutely accurate figures when plants are first set up and placed in operation) the capital invested in new manufacturing space (exclusive of equipment and operating capital) at about \$16,000,000 each year, the total amount spent for new construction would approximate \$32,000,000. On the basis of labor statistics regarding employment per industry, between 25,000 and 30,000 employees have been added to the payrolls in North Carolina during the past two years. At an average weekly wage of \$15.00 per person, the added payroll would amount to more than \$19,000,000.

### PROGRESS OF OUTSTANDING OBJECTIVES

At the outset, when the work of the Division of Commerce and Industry was organized on a full-time basis, it was felt that the state's most pressing industrial need was a further diversification of industry—especially textiles and plants to utilize semi-finished products and raw materials. It has been gratifying indeed to watch the progress in these fields during the past several years.

In textiles, there has been the rapid growth of full fashion hosiery, finishing and dyeing, and a wider use of silk, cotton, and rayon blends. Efforts to attract woolen and worsted manufacturers to the state seem to be on the verge of bearing fruit.

Some success has been achieved in the efforts to attract industries to consume native raw materials. One meat packing plant has been established in the eastern North Carolina commercial hog belt, and chances appear very favorable for the location of other such packing houses.

As time permits, further investigation of the possibilities of starch manufacture from sweet potatoes, plastics from soybeans, and other highly useful commodities from agricultural crops, is carried on. A pilot plant to test sweet potatoes for commercial starch is scheduled to begin operating in the state this year.

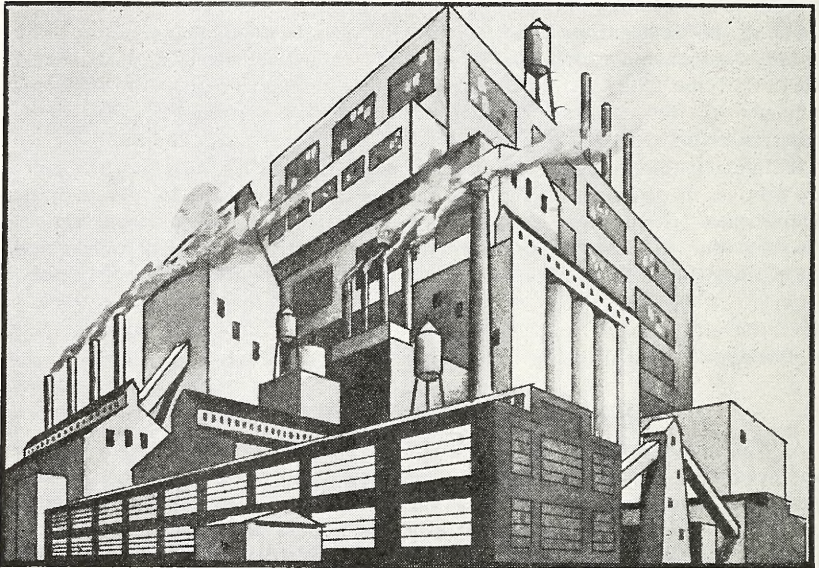
A project that has two years of work behind it appears to be making headway—the investigation of the possibilities of newsprint manufacture from Southern pine in North Carolina. It is believed that the inability of the Scandi-



navian countries to ship pulp and paper to this country due to the war, may greatly facilitate the expansion of the industry in the South.

### GENERAL SURVEY AND OFFICE WORK

Handicapped by a lack of personnel, the Division of Commerce and Industry has been able to make only localized surveys of a specific nature dealing with the requests of individual prospects. While this system has served the purpose of supplying immediate needs, it has occasioned delay in placing vital data in the hands of prospects, and eliminates altogether the possibility of compiling needed general surveys covering other areas of the state.



Capital invested in new manufacturing space in North Carolina during the past two years amounts to approximately \$32,000,000.

The need for additional survey work becomes more acute, when it is known that today's trend is decentralization towards the more modest sized cities and towns of the state, where no organizations or facilities are available to make required studies for industrial expansion. To make factual surveys of every town and city in the state would take years to complete. However, with one person being able to devote most of his time to this work, it should be possible to make fairly complete studies of those towns which are now evidencing such an interest in expansion, and which are strategically located to meet the requirements of various types of manufacture.

During the past the Division has undertaken several ambitious special surveys—working at the job as time permitted. The response to these efforts on the part of prospects into whose hands they were placed, is proof of the great value of this unique and personalized service.

Since the existence of the Division has become generally known, there has been an enormous increase in the number of requests for all types of information dealing with the industrial life and progress of North Carolina.

In connection with the above, it is thought desirable that the *North Carolina Directory and Reference Book* issued in 1938, be revised and re-issued in a form similar to the first volume. Census figures for the 1939 tabulation of industries and 1940 population reports, should be available the latter part of 1941. Actual compilation of a number of features, however, could begin during the first part of 1941.

### NATIONAL DEFENSE AND INDUSTRY

To date it is not possible to determine the extent of mobilization of resources and industries contemplated under the National Defense program inaugurated by the Federal Government. Nor is it known what effect this mobilization will have upon established industries and the state's efforts to attract new lines of manufacture. Any expressions about these matters are pure conjecture, and have no facts to substantiate them. This much does seem fairly clear, however, the closing of sources of supplies formerly open to this country will force the nation to expand in many lines of manufacture formerly limited to other countries.

It is expected that the Division of Commerce and Industry will function as an integral part of whatever state defense program may be put into effect. The head of the Division has been appointed Chairman of the N. C. Defense Committee, and from his office may be collected essential data covering the industrial resources and possibilities of the state.

From the standpoint of promoting strictly war industries to locate in North Carolina, the Division has felt that no particular effort should be made along this line, as the value of such gains to the economic welfare are more or less transitory. However, should this state—in the eyes of the Defense Committee—prove logically situated for certain types of war industries, the Division will lend its support to placing them here.



## DIVISION OF FORESTRY

Now that this Nation is bending every effort towards the attainment of a condition of adequate national defense, the effective operation of the Division of Forestry is more than ever important. While the first line of defense is the armed forces of the country, the men on the farms and the products of the land form the second line of defense, which in the long run is of equal value. The timber on the farms, on timber tracts and on public lands must be conserved and a reserve built up so that all possible emergency calls for wood in its various forms may be met with an adequate supply.

The Division of Forestry as organized, is in a position to bring this about provided essential appropriations are made. The State has not been called upon to appropriate funds for the first line of defense though the Nation is dedicating billions of dollars to this purpose. For the second line, i.e. production from the land of food and timber, the State is directly responsible. We should take immediate steps to act upon President Roosevelt's demand that all the Nation's natural resources as well as its human resources be dedicated to the program of national defense. The Nation's interest in its forests and forest land, both publicly and privately owned, is also the State's interest. For this reason we must in times like these consider the public benefit as supreme over all private land and timber values. Both the State and the Federal Government have taxable interests in the land and in the growing timber crop and such taxation values are an essential part of any defense program; but the forest products themselves are of much greater defense value. Other assets can be levied on to produce taxes, but nothing can take the place of timber in a defense program.

The State must therefore insist, so far as legally possible, on the maintenance of a growing crop on all forest land and on the establishment as soon as possible of a reserve supply of timber. Storing such timber as we have for future use has the advantage over the storage of any other crop in that it improves in both quantity and quality with keeping. A landowner has no moral right and should have no legal right to "cut out and get out," namely to take everything off his woodland and leave it without possibility of reestablishing the normal crop, because by so doing he reduces the defense strength of the Nation. For the same reason the private landowner should not be allowed to burn over his own land and thereby reduce the rate of growth or the chance for another crop even though he himself can afford the loss. In doing so he will be destroying natural resources in which the public has a vital interest and which are an integral part of national defense. Under present laws this Division is empowered to furnish protection from fire to all the forests of the State. There are still five million acres of forest land without any form of public protection and funds for controlling fire on the protected forests are entirely inadequate. Again, on most farms there is a percentage of land which is not being used and is producing nothing. Such land unless needed for more productive purposes should at least be producing something that will contribute to the national good. Unless forests can be reestablished naturally, forest planting should be resorted to.



Such a program should certainly form a part of a reasonable and necessary program to meet a dark and threatening future. It is up to us to push such a program of preparedness. A naval program may be completed in seven years but to build up an adequate timber reserve will take several times seven years. This Department has the machinery already set up; all that is needed is adequate funds with which to carry forward such a program.

Under the Bellamy Act additional responsibility was placed on this Division for securing better woods practice in the management of privately owned forest land. Increased yields must be secured through better cutting methods, the thinning of growing stands, planting and other practices which under present law can only be effected through the landowner. Properly trained and experienced men must show these owners, on the ground, the methods best adapted to their special conditions and circumstances. This has been started but the small appropriation made available is entirely inadequate for the accomplishment of this task, so essential to the security of our country and the well-being of our State.

But it is not only landowners who must be reached. A forest betterment program must carry on into the future and all sections of the population must be reached. Our young people, especially those living in the country, who are the future woodland owners and users of America, must be reached. This Division is no doubt the best agency for supplying information on forestry to school children and students through lectures, demonstrations and publications. It has been doing this to the limit of its available funds. The demand is great and persistent, but the State's response has been most inadequate. Funds for the employment of capable educational men and for much needed printing are essential to a State forestry program.

This is not the time to reduce appropriations for conservation. Our armed forces are being strengthened at a cost of billions of dollars and we hear no complaint. Our natural resources through which we will be enabled to endure must likewise be strengthened.

### FOREST FIRE CONTROL

During the period of this report the actual area under protection of the State Forest Service changed very little, although the Progress Chart given below shows considerable change in the size of the protected area between 1938 and 1939. The reason for this change is explained in a footnote to the Progress Chart. Financial coöperation was continued with the Federal Government under Section 2 of the Clarke-McNary Law, whereby Federal funds are allotted to the several states for fire prevention based upon appropriations made available within the states themselves. It will be noted in the Progress Chart that this Federal appropriation increased considerably during the period of this report. These increased funds were devoted toward giving somewhat better protection to the counties already coöperating, rather than to extending the protected area to new counties. In spite of this increased protection, however, it is to be noted that the Department is unable to call the area "adequately protected." (See footnote to Progress Chart.) The Department has consistently chosen to extend some measure of protection to as many Counties as feasible, on the principle of "the greatest good to the greatest number of people," rather than to concentrate its funds on really adequate protection upon a relatively small area. There remain

about 12 to 15 counties in the State, badly in need of fire protection, to which the work should be extended, on the same principle, as funds become available. Thenceforward the Department's first endeavor will be to improve and enhance the work on the area protected before expanding that area to include the remaining Counties whose need for fire control is not so great. Despite

### PROGRESS CHART

Fire Control Personnel	As of June 30, 1938	As of June 30, 1939	As of June 30, 1940
Central Office Supervisors.....	2	2	2
District Foresters.....	4	4	4
District Rangers.....	6	6	7
County Forest Wardens.....	58	58	59
Protective Association Rangers.....	8	8	8
Counties Cooperating.....	58	58	59
Private Timberland Owners Cooperating.....	55	47	49
*Forest Area under State Protection (Acres).....	13,744,737	11,888,405	11,875,667
<b>FINANCES:</b>			
Appropriations by Counties.....	\$ 58,439	\$ 57,771	\$ 60,117
Appropriations by Private Owners.....	6,816	7,605	10,197
Appropriation by State for Fire Control.....	38,180	38,180	35,045
Game Fund Transfer.....	8,750	8,750	11,250
Appropriation by Federal Government.....	56,390	66,696	69,196
<b>TOTAL APPROPRIATIONS.....</b>	<b>\$ 168,575</b>	<b>\$ 179,002</b>	<b>\$ 185,805</b>
<b>ACTUAL Funds Available Per Acre Protected.....</b>	<b>1.15 cents</b>	<b>1.39 cents</b>	<b>1.49 cents</b>

\* See footnote under Table E.

NOTE: Adequate and efficient forest fire protection on a State-wide basis could be given to all of the State's non-Federal forest area (about 17,059,000 acres) at a cost of about 4.6 cents per acre per year. This figure results from a Survey made by the Department in cooperation with all other Southern States and with the United States Forest Service.

restricted budgets, however, on every fire within a protected County during this period action was taken by the Warden force that was satisfactory commensurate with financial resources available.

*Supervisory Personnel:* As indicated in the Progress Chart the number of District Foresters remained the same throughout the period of this report and was the same as at the end of the last Biennium. The number of District Rangers increased from 6 to 7 through the employment of Paul Sebring in September 1939, and his assignment to the Fayetteville District. In November 1939 District Ranger McMillan was transferred from District 3 to District 6, and District Ranger Floyd Jones from District 6 to District 3 as Acting District Forester. Also in July 1938 County Warden E. C. Ferebee of Craven County was promoted to District Ranger in District 5, replacing J. D. Whitford who had resigned to become County Warden of his home County of Craven.

The six District Offices as of June 30, 1940, are as follows: District 1 Asheville; District 2, Lenoir; District 3, Rockingham; District 4, New Bern; District 5, Rocky Mount; District 6, Fayetteville. All of these offices, except the one at Fayetteville, are in Federal Postoffice buildings. Personnel of these



offices will be found under "Department Personnel" near the frontispiece of this Report.

*Present Organization:* As of June 30, 1940, the Branch of Forest Fire Control, under supervision of the State Forester, has the following Raleigh Office personnel: Chief of Forest Fire Control, one Forest Inspector, and three office assistants. One of the four District Foresters is in charge of Districts 1 and 2; District 3 is in charge of the District Ranger as Acting District Forester. Five of the six organized Districts have a District Ranger and a District Office Clerk-Stenographer; the sixth District has two Rangers and a Clerk-Stenographer. In each of the 59 protected Counties there is a salaried full-time County Forest Warden. There are 8 salaried Association Rangers, working under supervision of the respective County Wardens, on as many of the 14 Protective Associations. Eighteen of the County Wardens are also the County Game Protectors in their respective Counties and their salaries are paid jointly by the two Divisions of this Department. Most of the County Wardens and Association Rangers are supplied with State-owned  $\frac{1}{2}$ -ton pickup trucks to use in their work. These men furnish their own gas and oil for the truck, while the Department bears the cost of tires, licenses and major repairs.

Each protected County is divided into so-called Fire Districts averaging about 15,000 acres of forest land apiece. In each Fire District there is under appointment a District Forest Warden, not salaried but paid by the hour for such fire-fighting as he may do. He is supplied with State-owned fire tools and his work is supervised by the County Warden. As financial resources increase, the Department is slowly reducing the number of these District Wardens, whose work is of course voluntary, and placing more dependence upon salaried Smokechasers and salaried 2-5 man Fire Crews employed during fire season months and strategically stationed with respect to the lookout tower and telephone system.

During both the spring and fall fire seasons salaried towermen are on duty at each of the State's 86 lookout towers.

Much dependence is still necessarily placed upon local "pick-up" fire fighters employed by Wardens for fire suppression and paid an hourly wage. As in the case of the District Wardens, the Department's endeavor is to replace gradually and largely these men with the salaried Smokechasers and Fire Crews whose quicker availability and steady training will result in smaller fires and more effective action.

*County Coöperation:* The Department operates its Forest Fire Control program principally on the basis of County units and financial coöperation by the Counties. This system is one that is recognized throughout the South as a very effective and desirable one, and the fact that it is valuable is shown here by the number of requests for such coöperation from several Counties which the Department has received but has been forced to refuse due to lack of departmental matching funds. Until a few years ago one of the Forest Service's major problems was the securing of County Appropriations for Fire Control at the beginning of each fiscal year. It is of interest to note that such appropriations are no longer difficult to secure voluntarily. Such increase in public recognition of the importance of forest protection is gratifying to the Department.



Among the Counties requesting coöperative status during the period of this report and whose request had to be refused was Avery County. So important did this County consider the work that in April 1940 they entered a protective status with the Department whereby all the costs of the work were borne for the balance of the fiscal year by the County alone, rather than by the County and State which is our usual arrangement.

Although the entire non-federal forest area of the State needs and should have fire protection, available funds have never permitted extension of this work to more than 60 of the State's 100 Counties.

*Private Coöperation:* In addition to the County protective unit, the Department coöperates with individual landowners or groups thereof whose forest holdings represent contiguous areas of about 10,000 acres or more, and who desire more nearly adequate fire protection. These landowners pay to the Department an annual assessment ranging from 1 to 5 cents per acre, depending upon the problems involved; and this sum is matched equally from Departmental funds. Such coöperation enables the Department to maintain additional improvements upon such lands, which would not be possible under present county coöperative finances.

Again during each of the fiscal years covered by this report the owners of some 200,000 acres of forest land made request to the Department for coöperative fire protection status similar to that outlined above. The Department was unable to act upon such requests because of restricted finances.

There are appended herewith tables showing the coöperating Counties and the Protective Associations for the period of this report. (Tables A and B.)

TABLE A  
COUNTIES COOPERATING AND ANNUAL SUMS MADE  
AVAILABLE BY THEM

County	1936-1937	1937-1938	1938-1939	1939-1940
Alleghany.....	\$ 750	\$ 750	\$ 750	\$ 750
Anson.....	700	700	700	700
Avery.....	600			750
Beaufort.....	1,250	1,250	1,250	1,250
Bertie.....	1,500	1,500	1,500	1,500
Bladen.....	1,500	1,500	1,500	1,500
Brunswick.....	2,000	2,000	2,000	2,000
Buncombe.....	1,000	1,000	1,000	1,250
Burke.....	1,300	1,500	1,500	1,500
Caldwell.....	1,000	1,000	1,000	1,000
Chatham.....	700	700	700	700
Cherokee.....	600	1,000	1,000	1,000
Columbus.....	1,500	1,500	1,500	1,700
Craven.....	1,000	1,000	1,000	1,250
Cumberland.....	950	1,225	825	1,500
Dare.....	1,100	1,100	1,100	1,100
Durham.....	800	800	800	800
Duplin.....	1,800	1,800	1,800	1,800
Edgecombe.....	1,000	1,000	1,000	1,000
Graham.....	700	700	700	700
Greene.....	600	600	600	600
Halifax.....	1,000	1,000	1,000	1,000
Harnett.....	850	850	850	850
Haywood.....	400	450	800	1,000
Henderson.....	450	750	750	800
Hertford.....	750	750	750	750
Hoke.....	300	450	450	450
Jackson.....	600	800	800	800
Jones.....	750	867	841	750
Johnston.....	1,250	1,250	1,250	1,250
Lee.....	400	400	400	400
Lenoir.....	800	1,060	800	800
Macon.....	687	750	750	750
Martin.....	1,050	1,050	1,050	1,050
McDowell.....	755	755	1,000	800
Montgomery.....	850	850	850	850
Moore.....	1,250	1,250	1,250	1,250
Nash.....	1,250	1,250	1,250	1,250
Northampton.....	750	750	750	750
Onslow.....	850	850	850	1,000
Pitt.....	1,200	1,200	1,200	1,200
Polk.....	750	750	750	750
Pender.....	1,500	1,500	1,500	1,500
Richmond.....	1,250	1,250	1,250	1,250
Robeson.....	1,800	1,800	1,800	1,800
Rutherford.....	1,000	1,000	1,000	1,300
Sampson.....	1,500	1,800	1,500	1,500
Scotland.....	600	600	600	600
Stanly.....	920	700	700	700
Surry.....	600	660	600	700
Swain.....	1,400	1,000	1,000	1,000
Transylvania.....	600	600	600	900
Union.....	350			
Warren.....	900	950	1,015	1,026
Wake.....	1,000	1,200	1,000	1,000

COUNTIES COOPERATING AND ANNUAL SUMS MADE  
AVAILABLE BY THEM—*Continued*

County	1936-1937	1937-1938	1938-1939	1939-1940
Washington.....	\$ 1,250	\$ 1,476	\$ 1,165	\$ 1,050
Wayne.....	1,250	1,250	1,250	1,250
Wilkes.....	500	500	500	900
Wilson.....	900	950	900	900
Yancey.....	500	500	500	500
NUMBER COUNTIES COOPERATING....	60	58	58	59

TABLE B  
FOREST PROTECTIVE ASSOCIATIONS

Name of Association	Assessment Rate	Location—County	Number Individuals in Associations		Acreage Listed	
			1938-39	1939-40	1938-39	1939-40
Elk Creek.....	<i>Cents</i> 2	Watauga, Wilkes, Caldwell.....	1	1	40,000	40,000
South Mountain.....	1	Burke, McDowell, Rutherford, Cleveland.....	6	6	38,000	35,000
Moore County (Minimum Dues, \$5).....	2	Moore.....	14	14	14,000	14,000
Eureka.....	1	Beaufort.....	1	1	8,000	8,000
State College.....	2	Onslow, Jones.....	1	1	84,000	84,000
Sandy Run.....	2	Onslow.....	1	1	45,000	45,000
Camp Manufacturing Co.....	1	Bertie, Gates, Hertford.....	1	1	45,000	45,000
Thompson.....	2	Martin.....	1	1	10,000	10,000
Holly Shelter.....	2	Pender.....	2	2	18,000	18,000
Orton.....	2½	Brunswick.....	10	9	44,000	34,000
Overhills.....	1	Harnett, Hoke, Cumberland.....	2	2	36,000	36,000
Riegel.....	¾+	Brunswick, Columbus.....	1	1	136,000	136,000
Southern Brunswick.....	2½	Brunswick, Columbus.....	2	2	15,000	15,000
Waccamaw.....	4	Columbus, Bladen.....	6	7	36,000	36,000
TOTAL.....	..	..	47	49	475,000	556,000



*Land Use Areas:* During the early part of 1939 the Department took over from the Federal Government on a long-term lease basis the administration of two Land Use Areas which had been originally acquired by the Resettlement Administration. One of these Areas of about 40,000 acres lies in Bladen County, and the other of about 70,000 acres lies in Richmond and Scotland counties. Beginning in the fall of 1939 the Division of Forestry accepted full responsibility for fire control on these Areas under a co-operative financial arrangement with the Division of Game and Inland Fisheries for the balance of the fiscal year 1939-40. This responsibility was discharged by the appointment of special fire control personnel on each of the two Areas and the results obtained in control of fires on the Areas were highly satisfactory.

*Fire Control Improvements:* The construction and maintenance of such permanent improvements as lookout towers, towermen's houses and telephone lines is a highly important phase of the fire control work. Included in this report are lists of State towers, coöperating towers and telephone line mileage as of 6-30-40.

TABLE C  
LIST OF STATE LOOKOUT TOWERS (to 6-30-40)

Name	Height	County	Date Erected	Built by	Initial Cost	Towerman's House
Mt. Mitchell.....	35'0"	Yancey.....	1927	Donation	\$ 25,000	3-room
High Windy.....	45'9"	Buncombe.....	1934	CCC	969	1-room
Tryon Mountain.....	45'9"	Polk.....	1934	CCC	873	1-room
Spivey Mountain.....	35'0"	Buncombe.....	1928	NCFS	778	1-room
Chambers Mountain.....	45'9"	Haywood.....	1934	CCC	942	1-room
Toxaway Mountain.....	45'9"	Transylvania-Jackson..	1935	CCC	889	1-room
Sassafras Mountain.....	35'0"	Transylvania.....	1932	NCFS & SCFS	750	SCFS house
Corbin Mountain.....	35'0"	Henderson.....	1932	NCFS & SCFS	750	SCFS house
Bearwallow Mountain.....	47'0"	Buncombe-Henderson..	1934	NCFS & CCC	800	1-room
Rendezvous Mountain.....	59'3"	Wilkes.....	1934	CCC	824	3-room
Pore's Knob.....	47'0"	Wilkes.....	1929	NCFS	861	1-room
Hibriten Mountain.....	35'0"	Caldwell.....	1927	NCFS	628	1-room
Duggar Mountain.....	35'0"	Watauga.....	1929	NCFS	739	1-room
High Peak.....	59'3"	Burke.....	1934	CCC	981	1-room
Horse Ridge.....	35'0"	Burke.....	1928	NCFS	423	1-room
Table Rock.....	House					
Biggerstaff Mountain.....	47'9"	Burke.....	1935	CCC	381	1-room
		Rutherford.....	1934	NCFS & CCC	749	1-room
Pinnacle Mountain.....	45'9"	Rutherford.....	1934	CCC	894	1-room
Roaring Gap.....	59'3"	Alleghany.....	1935	CCC	963	1-room
Scotland.....	72'9"	Scotland.....	1934	CCC	1,249	2-room
Southern Pines.....	72'9"	Moore.....	1934	CCC	991	4-room
Ellerbe.....	59'3"	Richmond.....	1934	CCC	1,273	2-room
Mt. Tirzah.....	72'9"	Person.....	1934	CCC	1,349	2-room
Bayleaf.....	99'9"	Wake.....	1937	CCC	1,761	5-room
Tuscarora.....	99'9"	Craven.....	1934	CCC	1,355	2-room
Wilmar.....	99'9"	Craven.....	1935	CCC	2,149	4-room
Wilson.....	99'9"	Wilson.....	1935	CCC	1,423	2-room
Dudley.....	99'9"	Wayne.....	1935	CCC	1,746	3-room
Snow Hill.....	86'3"	Greene.....	1934	CCC	1,397	2-room
Everett.....	99'9"	Beaufort.....	1936	CCC	1,410	2-room
Comfort.....	99'9"	Jones.....	1936	CCC	2,001	
Young.....	99'9"	Johnston.....	1936	CCC	1,519	
Earp.....	100'0"	Johnston.....	1936	Private & CCC	1,095	
Greenville.....	99'9"	Pitt.....	1936	CCC	1,574	
Kinston.....	99'9"	Lenoir.....	1937	CCC	1,938	5-room
Dixon.....	120'0"	Onslow.....	1937	CCC	2,459	5-room
Redditt.....	99'9"	Beaufort.....	1936	CCC	1,640	2-room
Deppe.....	120'0"	Onslow.....	1938	CCC	2,478	
Edgecombe.....	93'0"	Edgecombe.....	1932	NCFS	1,029	2-room
Green Cross.....	99'9"	Bertie.....	1934	CCC	1,256	2-room
Woodville.....	80'0"	Bertie.....	1928	NCFS	1,358	2-room
Jackson.....	86'3"	Northampton.....	1934	CCC	1,335	2-room
Thomas.....	93'0"	Hertford.....	1929	NCFS	1,467	2-room
Liles.....	79'6"	Halifax.....	1935	CCC	1,087	2-room
Scotland Neck.....	99'9"	Halifax.....	1934	CCC	1,553	2-room
Swift Creek.....	79'6"	Nash.....	1935	CCC	1,221	2-room
Warren.....	80'0"	Warren.....	1932	NCFS	1,079	2-room
Plymouth.....	99'9"	Washington.....	1936	CCC	1,512	

## LIST OF STATE LOOKOUT TOWERS (to 6-30-40)—Continued

Name	Height	County	Date Erected	Built by	Initial Cost	Towerman's House
Foreman.....	99'9"	Martin.....	1936	CCC	\$ 1,344	5-room
Camp.....	102'0"	Hertford.....	1928	Private & CCC	1,200	
Hassell.....	99'9"	Martin.....	1936	CCC	1,595	3-room
East Lake.....	120'0"	Dare.....	1938	CCC	3,018	2-room
Palestine.....	60'0"	Cumberland.....	1927	NCFS	1,152	2-room
Cedar Creek.....	99'9"	Cumberland.....	1934	CCC	2,121	1-room
*Cameron Hill.....	100'0"	Harnett.....	1938	CCC	2,077	1-room
Mamers.....	72'9"	Harnett.....	1934	CCC	991	2-room
Chadbourn.....	100'0"	Columbus.....	1930	NCFS	1,100	
Nakina.....	100'0"	Columbus.....	1931	NCFS	1,150	
Waccamaw.....	100'0"	Columbus.....	1929	Private	1,200	
Proctorville.....	99'9"	Robeson.....	1934	CCC	1,281	2-room
Pembroke.....	85'0"	Robeson.....	1928	NCFS	1,396	5-room
Parkton.....	99'9"	Robeson.....	1929	NCFS	1,591	2-room
East Robeson.....	99'9"	Robeson.....	1935	CCC	1,715	2-room
Orton.....	80'0"	Brunswick.....	1931	Private & NCFS	1,100	
Shallotte.....	99'9"	Brunswick.....	1935	CCC	2,123	4-room
Bolivia.....	99'9"	Brunswick.....	1929	NCFS	1,556	5-room
Maco.....	99'9"	Brunswick.....	1936	CCC	1,698	5-room
Jones Lake.....	99'9"	Bladen.....	1935	CCC	1,532	2-room
Rose Hill.....	99'9"	Duplin.....	1936	CCC	1,630	5-room
Newkirk.....	99'9"	Sampson.....	1936	CCC	1,424	4-room
Chinquapin.....	99'9"	Pender.....	1936	CCC	1,824	
Bannerman.....	80'0"	Pender.....	1927	Private & NCFS	1,150	
Ward's Corner.....	120'0"	Pender.....	1936	CCC	2,090	5-room
Pink Hill.....	99'9"	Duplin.....	1937	CCC	1,811	
Clinton.....	120'0"	Sampson.....	1937	CCC	3,234	4-room
Williams Lake.....	120'0"	Sampson.....	1937	CCC	2,904	4-room
*Knightdale.....	120'0"	Wake.....	1938	CCC	2,781	4-room
Hoffman.....	99'9"	Richmond.....	1937	Resettlement Admin.	1,500	3-room
Hamlet.....	99'9"	Richmond.....	1937	Resettlement Admin.	1,500	3-room
*Stumpy Point.....	120'0"	Dare.....	1939	CCC	2,597	
*Scuppernong.....	120'0"	Washington.....	1939	CCC	2,728	
*Glover.....	100'0"	Nash.....	1940	CCC	1,946	
*Riegel.....	120'0"	Brunswick.....	1938	CCC	2,788	5-room
Lagoon.....	100'0"	Bladen.....	1937	Resettlement Admin.	1,521	
*Rich Mountain.....	40'4"	Transylvania.....	1939	CCC	1,851	House on Tower
Hawshaw Mountain.....	45'9"	Avery.....	1934	CCC	1,041	1-room
TOTAL TOWERS—86						
TOTAL HOUSES—65						

\* Towers erected during this Biennium.



## TABLE C-1

### FEDERAL TOWERS

The following Federal lookout towers, erected primarily for protection of Federally-owned lands, also overlook areas under protection by the State, and have served to supplement the State's tower system in locating fires on such areas:

#### UNITED STATES FOREST SERVICE TOWERS

Big Stomp in Cherokee County.  
 Panther Knob in Cherokee County.  
 Hayoe Bald in Graham County.  
 Teyahalee in Graham County.  
 Wayah Bald in Macon County.  
 Standing Indian in Macon County.  
 Wesser Bald in Macon County.  
 Satulah Mountain in Macon County.  
 Yellow Mountain in Macon County.  
 Cowee Bald in Jackson County.  
 Rabun Bald in North Georgia.  
 Rocky Top in North Georgia.  
 Hightop in Haywood County.  
 Sutton Mountain in Haywood County.  
 Pilot Mountain in Transylvania County.  
 Ferrin Knob in Buncombe County.  
 Little Snowball in Buncombe County.  
 Woods Knob in McDowell County.  
 Green Knob in McDowell County.  
 Chestnut Mountain in Avery County.  
 Sand Mountain in Caldwell County.  
 Rocky Knob in Caldwell County.  
 Buck Mountain in Montgomery County.  
 Croatan in Craven County.  
 Harlowe in Craven County.  
 Island Creek in Jones County.  
 Black Swamp in Jones County.  
 Pelletier in Carteret County.  
 Newport in Carteret County.

#### NATIONAL PARK SERVICE TOWERS

Shuckstack in Swain County.  
 High Rocks in Swain County.  
 Frye Mountain in Swain County.  
 Barnett Knob in Swain County.  
 Mount Sterling in Haywood County.  
 Spruce Mountain in Haywood County.  
 White Rock in Haywood County.

#### UNITED STATES INDIAN SERVICE TOWERS

Lickstone Mountain in Jackson County.

TABLE D

## STATE FOREST SERVICE TELEPHONE LINES

As a part of its fire-detection and reporting system, the State Forest Service owned and operated, as of 6-30-40, the following mileage of telephone lines. Most of the lines connect lookout towers with Wardens and other towers, or with commercial telephone lines, or both; all are erected on poles, and nearly all are metallic circuit (2-wire) lines.

Forest Service District	Total mileage of line
No. 1—Asheville .....	77.2
No. 2—Lenoir .....	166.5
No. 3—Rockingham .....	102.4
No. 4—New Bern .....	77.4
No. 5—Rocky Mount .....	52.6
No. 6—Fayetteville .....	436.7
Total for State.....	912.8

The great majority of these improvements constructed during this Biennium have been built by the CCC, from camps under supervision of the State Forester, and at no direct cost to the State or Counties.

Six additional towers and the materials for some 30 miles of telephone line have also been purchased by the CCC for construction in the immediate future.

A complete record of the activities of CCC Camps under supervision of the State forester will be found elsewhere in this report. The truck trails constructed by these camps are low-standard roads built for accessibility into remote forest areas for fire control purposes only. Their acceptance by the State, upon completion by the CCC, renders the State responsible for their proper maintenance in the future, by agreement with the Federal Government.

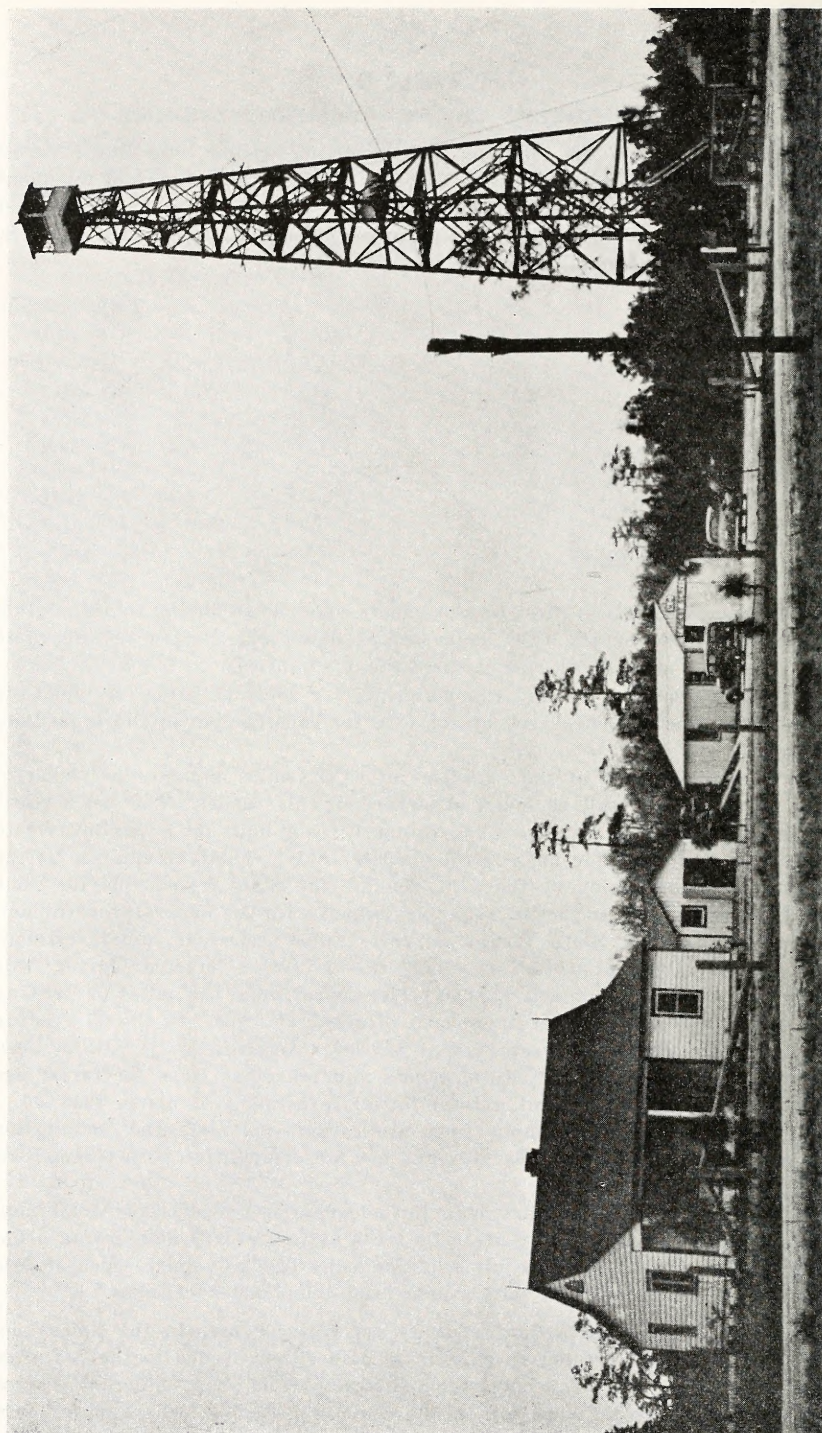
The 86 existing State Forest Service towers represent an investment of approximately \$130,000, of which the 7 towers erected during this Biennium account for about \$12,000. The approximate 913 miles of existing telephone line represent an investment of about \$170,000. In the 65 existing tower houses there is invested about \$45,000. Accordingly, it will be seen that the State now owns towers, houses and telephone lines for forest fire control work that represent a total initial investment of about \$345,000.

These State-owned telephone lines are constructed and used for the activities of the State Forest Service, and are not competitive with commercial telephone systems.

The Department's long-time plan for adequate fire protection of all non-federal forest lands in the State calls for a system of 130 State-owned lookout towers, and about 1,200 miles of telephone line to connect such towers with Forest Wardens and with commercial telephone exchanges.

*General Improvements Data:* Towers and tower houses in the State's detection system are erected on plots of ground either deeded to the State, or under long-time lease at no cost. Such sites vary from about  $\frac{1}{4}$  acre to 2 acres in size. The smaller ones are in the Mountain Region, where towers are





RIEDEL RANGER STATION N. C. F. S. Ranger dwelling, garage, and tool shed, repair shop and 125-foot tower. One of the 64 towers at the 86 towers in the



occupied only during the Spring and Fall fire seasons. At some of the Coastal Plain towers the towerman is a year-long resident, living in the State-owned house with his family and working a garden on the tower site. Such year-long residence gives the State the benefit of the towerman's services whenever needed and provides a full-time caretaker for the State's valuable property.

The placing of towers and telephone lines is governed by a Detection Plan which fits them into the existing system in such manner that eventually all of the State's forest area will be covered by these "eyes" of the Forest Service. The plan takes into consideration the existing or proposed towers of other agencies such as the U. S. Forest Service and National Park Service, and also recognizes existing commercial telephone lines. In this way, duplication of visible areas from towers and of telephone communication is avoided.

*Fire-fighting Equipment:* Specialized equipment for forest fire-fighting has been developed by Federal and State Forest Services throughout the country. Some of it such as portable gas-engine pumps and tank-trucks, is quite expensive but, regardless of its effectiveness, Forest Fire Control funds have not permitted its acquisition and use. Instead, it has been necessary to rely on small hand tools. The rough usage such equipment must bear in fire-fighting renders annual replacement needs a very sizable item. Budgetary limitations during the Biennium have held such replacements to a rigid minimum, and a table is included in this report to indicate these purchases. (Table D.)

The automobiles listed are largely ½-ton pickup trucks placed in the hands of County Forest Wardens and Association Rangers. They are used in transporting men and tools to fires and for other related Forest Fire Control activities. Some of them, in the Coastal Plain Region, are equipped with built-in water tanks and motor-driven water pumps. The others are equipped with removable fire-tool boxes which, when closed, also serve as seats for the transporting of fire-fighters.

The trailers are two-wheel affairs equipped with water-drums and a set of standardized hand tools for fire fighting.

Financial limitations have prohibited the purchase of heavy equipment such as tractors, fire line plows and other equipment much needed during this Biennium. The Fire Control Division was able to purchase two 1½ ton trucks, one for District 6 and one for District 2, and one 8-foot road grader for the Waccamaw Association. These trucks are being used principally in maintenance work on State-owned telephone lines and on CCC constructed truck trails.

*Forest Fire Statistics:* A table of fire statistics for the past 4 fiscal years is given below (Table E). In analyzing any such table, it is, of course, necessary to bear in mind two factors:

1. The funds available to do the job, as against the funds known to be required to do a fully adequate job.
2. The fact that climatic factors such as rainfall distribution, and human factors such as the distribution of logging operations, etc., have a continuous bearing upon Forest Fire Control. In other words, these variable factors cannot be estimated except in the light of past experience, and therefore

TABLE D  
LIST OF PRINCIPAL ITEMS OF FIRE-FIGHTING EQUIPMENT

	Purchased During Biennium	Total on Hand Date of This Report
Automobiles.....	34	63
Axes.....	55	194
Buckets, Water.....	186	510
Hooks, Bush.....	120	861
Lanterns.....	3	62
Pumps, Knapsack.....	332	2,466
Rakes, Fire.....	270	4,966
Shovels.....	22	225
Swatters.....	127	918
Torches, Backfire.....		12
Trailers.....		58

without an adequate organization and equipment it must be expected that results obtained in Forest Fire Control will vary far more widely than would be the case were such adequate resources available.

As will be seen from the statistics in the table the fire seasons from July 1936 to June 1939 were quite similar in so far as fire incidence was concerned. The fall of 1939, however, represented possibly the worst fall fire season, particularly in Western North Carolina, for the past 10 or 12 years. This is borne out by the records of both the State Forest Service and the National Forests in Western North Carolina. It is also attested by records in all the States throughout the Southern Appalachian Region.

The table of statistics shows graphically the loss still sustained each year from forest fires, even on areas given the existing measure of State Protection. The Department feels that adequate protection, as indicated in the footnote to the foregoing Progress Chart, would very materially reduce this annual and wasteful loss.

*Accomplishments:* The law enacted by the 1937 Legislature and sponsored by the Department which requires the obtaining of Brush Burning Permits from State Forest Fire Wardens was amended at the Department's request in the 1939 Legislature. The amendment requires such permits in State-protected forest areas during the periods of February 1 to June 1, inclusive, and October 1 to November 30, inclusive, of each year. Permits are issued free of charge. The amendment makes a violation of the law a misdemeanor punishable by a fine of not more than \$50 or by imprisonment for not more than 30 days. The effectiveness of this burning permit law is illustrated by the fact that during the fiscal year 1937-38 about 10,000 permits were issued, while during fiscal year 1939-40 the number had risen to nearly 57,000. The law has been very favorably received by the general public and has been of great value to the Branch of Forest Fire Control.

Attention is invited to the activities of the Forest Warden force in enforcement of State Forest Fire Laws, as shown in the latter part of Table E. The Department looks upon such law enforcement by the Wardens not as a retaliation for an offense committed, but rather as a definite phase of its

TABLE E  
FOREST FIRE STATISTICS FOR PROTECTED AREAS  
BY FISCAL YEARS

	1936-1937	1937-1938	*1938-1939	*1939-1940
Area Under Protection—Acres .....	13,972,113	13,744,737	12,660,910	11,857,047
NUMBER OF FIRES BY CLASSES:				
A—Under ¼ acre.....	191	206	182	265
B—¼ to 10 acres.....	1,556	1,618	1,483	2,227
C—11 to 100 acres.....	1,216	1,515	1,415	2,068
D—101 to 500 acres.....	196	356	265	371
E—Over 500 acres.....	46	67	55	63
TOTAL.....	3,205	3,762	3,400	4,994
CAUSES OF FIRES:				
Brush Burning.....	647	823	682	1,050
Hunters, Fishermen, Campers.....	240	351	341	653
Railroads.....	102	78	88	181
Lumbering.....	72	78	49	78
Incendiary.....	820	933	854	1,216
Smokers.....	901	1,156	1,033	1,291
Lightning.....	23	30	17	45
Miscellaneous.....	335	306	336	478
Unknown.....	65	7	-----	2
TOTAL.....	3,205	3,762	3,400	4,994
AREA BURNED—ACRES:				
Merchantable Timber.....	31,617	52,182	50,228	61,508
Reproduction.....	106,582	142,501	138,365	157,570
Open Grass Land.....	24,720	38,592	26,217	28,859
TOTAL.....	162,919	233,275	214,810	247,937
Average Area Per Fire, Acres.....	51	62	63	50
Per Cent of Protected Area Burned.....	1.2%	1.7%	1.7%	2.1%
DAMAGE:				
Merchantable Timber.....	\$ 94,843	\$ 152,233	\$ 154,213	\$ 209,910
Reproduction.....	146,886	171,609	196,022	237,827
Other.....	24,853	19,767	9,989	35,748
TOTAL.....	\$ 266,582	\$ 343,609	\$ 360,224	\$ 483,485
Average Damage Per Fire.....	\$ 83	\$ 91	\$ 106	\$ 96
Total Fire Fighting Costs (Non-Salaried Personnel).....	14,145	15,214	12,234	18,148
Average Fire Fighting Costs Per Fire.....	4.41	4.02	3.60	3.63
LAW ENFORCEMENT:				
Number of Prosecutions.....	179	435	363	455
Number of Convictions.....	157	393	301	409
Court Costs and Fines.....	\$ 1,465	\$ 3,355	\$ 2,607	\$ 4,176
RESPONSIBLE PARTIES OTHERWISE HANDLED:				
Number of Parties Billed for FF Costs.....	297	305	302	489
Number Making Payment.....	291	314	250	395
Amount Received.....	\$ 1,382	\$ 1,450	\$ 1,254	\$ 1,941



FOREST FIRE STATISTICS FOR PROTECTED AREAS  
BY FISCAL YEARS—*Continued*

	1936-1937	1937-1938	*1938-1939	*1939-1940
<b>FF COSTS PAID BY LANDOWNERS:</b>				
Number of Parties Billed.....	26	13	12	6
Number Making Payment.....	26	14	10	6
Amount Received.....	\$ 87	\$ 73	\$ 63	\$ 17
Number of Burning Permits Issued.....		10,021	19,824	56,869
<b>WARDEN ACTIVITIES:</b>				
Number of Hours Worked.....	244,301	234,897	238,571	330,502
Miles Traveled—Car, Foot, Horse.....	582,905	594,544	537,915	732,647
Number of People Interviewed.....	114,619	114,390	103,814	85,315
Number of Sawmills Inspected.....	1,700	992	661	899
Number of Schools Visited.....	612	607	478	321

\* Effective January 1, 1939 we accepted the U. S. Forest Survey area figures for the State, showing a total State forest land area of 18,395,100 acres, in place of the former total of 21,318,000 acres. Reductions in protected area shown herein are, therefore, largely "reductions on paper."

educational program. Seldom is the maximum punishment under the law requested, but each case is given all possible local publicity.

During the period of this report the following fire control organization meetings were held for the more efficient conduct of the work.

1. District Foresters and District Rangers Conference in August 1939 at the Conference House on Mount Mitchell Coöperative Game Refuge.

2. County Forest Warden conferences; August 1939 at the Brevard CCC Camp; September 1939 at the Washington CCC Camp; September 1939 at the White Lake CCC Camp.

The Brevard conference included all County Wardens and Association Rangers of Districts 1 and 2; the Washington conferences included those from Districts 4 and 5; the White Lake included those from Districts 3 and 6.

Representatives of the United States Forest Service and United States National Park Service and State Highway patrolmen were present at the District Foresters and Rangers conference. These two conferences were confined entirely to the problems of Forest Fire Law Enforcement work.

In addition to the above, several meetings of non-salaried District Forest Wardens were held in different parts of the State, generally for the District Wardens from two adjoining Counties. These meetings were held by the District Foresters and the County Wardens as a part of our policy of encouragement for the volunteer and non-salaried District Warden organization.

*Conclusion:* As was indicated in the last Biennial report, each coöperating County has a full-time salaried County Forest Warden. This has resulted in considerably reducing the damage formerly done by so-called "off-season" fires, or fires which occur during mid-summer or mid-winter which is ordinarily not a bad fire season. The goal of the Department is, of course, to further develop its full-time organization on the same basis and for the same reason that a full-time organization is maintained for fire control in cities and towns.

During the Biennium, no specific forestry educational program was carried out involving the use of Departmental funds. Available resources did not

**TABLE F**  
**COMPARISON OF STATE-PROTECTED AREAS AND UNPROTECTED AREAS (by Calendar Years)**

(Federal Lands Protected by Federal Agencies NOT Included)	State-Protected Forest Area		Unprotected Forest Area**		Totals for State	
	*1938	*1939	1938	1939	*1938	*1939
Forest Area in Acres.....	13,436,715	11,838,527	6,592,685	5,221,317	20,029,400	17,059,844
No. of Fires Reported.....	3,684	4,155	374	526	4,058	4,681
Area Burned—Acres.....	216,058	250,950	70,644	177,985	286,702	428,935
Size of Average Fire—Acres...	59	60	189	338	71	92
Per Cent of Total Forest Area Burned.....	1.61%	2.12%	1.07%	3.41%	1.43%	2.51%
Damage Done by Fires.....	\$ 327,902	\$ 467,178	\$ 142,752	\$ 381,945	\$ 470,654	\$ 849,123

\* See footnote on Table E.

\*\* Figures on fires, damage, etc., for the unprotected areas are obtained by an annual survey in such areas and are, of necessity, only estimates.

NOTE: In connection with the comparisons in the above table, it should be remembered that the State Forest Service has purposely extended its protection activities first to the areas of highest fire hazard and greatest need (the counties in the mountain and Coastal Plain regions). This policy will continue; consequently, it is to be expected that as these "bad fire areas" are brought under protection the per cent of area burned in the *unprotected* areas (as well as the total acreage burned) will decrease in relation to the same figures for the *protected* areas.

**TABLE G**  
**COMPARATIVE FIGURES FOR SELECTED STATES**

State	Total Forest Area Needing State Protection (Acres)	Estimated Cost of Adequate Protection (Dollars)	Fiscal Year 1938-1939	
			Percent of Adequate Protection Cost Represented by Total Funds Available	Forest Area Under State Protection (Acres)
Arkansas.....	22,000,000	770,000	27	11,670,000
Florida.....	20,684,000	1,241,000	27	3,927,000
Georgia.....	20,562,000	1,026,000	23	3,636,000
Minnesota.....	19,891,000	995,000	50	19,891,000
Michigan.....	17,595,000	880,000	85	17,595,000
North Carolina.....	17,059,000	912,000	20	12,661,000
Louisiana.....	15,720,000	717,000	29	6,725,000
Mississippi.....	14,834,000	670,000	20	3,837,000
South Carolina.....	12,187,000	627,000	28	5,629,000

permit of special personnel and equipment for this purpose; however, the Warden organization was able to carry on a fairly satisfactory amount of this work through visits to rural schools, use of fire prevention posters and the use of items in the public press.

The Department's close coöperation with Federal agencies interested in forest fire control on Federal lands has continued on a highly satisfactory plane during this Biennium. As indicated in Table C-1, the towers and telephone lines of the United States Forest Service and the National Park Service have been invaluable in supplementing the State system in those Counties where Federal holdings are large.

During the latter part of 1938 the field work and preliminary computations of the United States Forest Survey were completed in North Carolina. As a result of this work the Department was able to obtain long needed and highly valuable information on the forest area and forest resources of the State. Since the Forest Survey had been conducted on a scientific basis, the Department accepted its findings as to forest areas throughout the State. This resulted in a reduction in our departmental figures for the total forest area of the State from about 21,000,000 acres to about 18,500,000 acres. Of the latter figure about 17,059,000 acres represent forest lands in non-federal ownership and therefore in need of State Forest Fire protection. All of the Department's area statistics since January 1, 1939, therefore, have been based upon this figure for non-federal ownership.

The continuing development of the pine-pulp industry throughout the South, including North Carolina, during the Biennium has served to focus public attention upon the potential values of our forest land. Adequate fire control is recognized by the pulp industry of the South to be the prime requisite for its continued life in this area.

The footnote to the foregoing Progress Chart indicates the estimated cost of adequate and efficient forest fire control in this State. The Department feels strongly that provision of such adequate funds would be amply justified in protecting the State's investment in its forest resources. The gravity of this fire problem in North Carolina is illustrated by the fact that State Forest Service figures give the *average annual* damage by forest fires on the non-federal lands during the years 1933 to 1937 as about \$1,500,000. The values at stake in any discussion of fire control are quite striking. Census estimates for 1937 place the income from all *lumber and timber products* in North Carolina, including fuel wood, at about \$50,000,000. During that same year the total value of *manufactured forest products*, including furniture and paper from wood pulp, approached \$123,000,000, or 9 per cent of all manufactured products produced in the State. Furthermore, census reports indicate that in 1938 North Carolina supported more saw mills than any other State in the Union, and that she was 4th among all the States in total lumber production. The Department estimates that in 1938 the State's tourist and recreation business brought in returns of some \$65,000,000, much of which may be directly attributed to the appeal of large forest areas and to the State's attractiveness for hunters and fishermen. It is evident, then, that forests play a very important part in the industrial economy of the State and that their protection from fire is worth far more attention than it has received.



## STATE PARKS AND STATE RECREATIONAL AREAS

Outdoor recreation has come to be a vital factor in maintaining the physical and mental well being of our people. Each year more and more people turn to the outdoors for recreation, and for relief from the pressure and tension of modern life, particularly modern urban life. Opportunity to seek recreation and relaxation in the outdoors has been much enlarged by shorter working hours and shorter working weeks, and by the development of the automobile and good roads, but the provision of places and facilities for outdoor recreation, especially those which can be used by individuals and groups of limited financial resources, has lagged far behind the ability and desire of the public to use them.

There are innumerable forms of outdoor recreation. Provision for some types of outdoor recreation is and should be by private enterprise, while provision for other types, because it is not generally financially profitable, is held to be a public responsibility to be discharged by various governmental units. In the discharge of this public responsibility for providing outdoor opportunities for intelligent and wholesome use of leisure time, Federal, State, municipal, and county governments have tasks to perform and spheres of responsibility.

The Federal Government provides and administers recreational facilities on lands brought into Federal ownership because they are for one reason or another important to the nation as a whole. For the most part these Federal areas are close to and easily reached by only a few people. Municipalities and counties provide those intensely developed areas that are used for frequent day to day intensive recreation by a local population.

The responsibility of the State lies in the provision of extensive areas for week-end, holiday, and vacation use, and a State park and recreational area system supplements the areas and facilities of both Federal and local agencies. It is also the State's responsibility to acquire, preserve and protect areas of State-wide scenic, historic, scientific or cultural importance so that they may be permanently preserved and protected for the people.

During the two year interval from July 1, 1938 to July 1, 1940 much has been done in North Carolina toward the development of a State park and recreational area system. However, these accomplishments, though gratifying when compared with previous progress, leave much to be desired when compared to the sort of State park and recreational area system to which the people of North Carolina are entitled.

Much of the work accomplished in the State parks and recreational areas has been done by Civilian Conservation Corps Camps and through funds under the joint direction of the Department and the National Park Service, and very important work has been done at Morrow Mountain State Park and at Fort Macon State Park by the Work Projects Administration. The State's participation of its State parks has been small.

*Mount Mitchell State Park.* The dominant feature of Mount Mitchell State Park is Mount Mitchell itself, towering 6,684 feet above sea level—the highest peak in eastern America. Among the other outstanding features of the park are virgin spruce and balsam forests, and views that are among the most beautiful and magnificent in the Southern Appalachians. Mount Mitchell State Park was established "to relieve this famous mountain from private

control, that the people of North Carolina, and tourists from all parts of the world might have the privilege of access," and to protect and preserve permanently the virgin forests in the park. All plans for the provision of public use facilities in the park are based on carrying out these two mandates of the legislative act under which Mount Mitchell was established, so that future generations, as well as ourselves, may have protected for them the original natural beauty of this area.

In spite of the fact that until the summer of 1940 access to Mount Mitchell was only over privately owned toll roads, thousands of visitors have been drawn annually to Mount Mitchell State Park by its natural attractions. During the summer of 1940, as the first step toward providing a public road to the park, the State Highway and Public Works Commission took over and somewhat improved the six and one-half miles of one-way toll road between the Blue Ridge Parkway at Swannanoa Gap and Mount Mitchell State Park, thus affording toll-free access to Mount Mitchell by way of the Blue Ridge Parkway. To supplement this temporary arrangement, the State Highway and Public Works Commission plans by next summer to complete a standard two-way connecting road between the Blue Ridge Parkway and Mount Mitchell State Park. When this permanent connection is made, the number of visitors to Mount Mitchell will be very greatly increased, and roads, parking areas, safe water supply systems, camping areas, overnight accommodations, and other public use facilities will be essential.

So far the only means available for constructing these facilities has been through Civilian Conservation Corps Camps which have occupied Mount Mitchell during the summer months only. These summer occupations have been attended by many difficulties, and much valuable working time has been taken up each year in the long drawn out procedure of establishing a Civilian Conservation Corps Camp in the early summer and removing it in the early fall. However, because of the construction of a permanent all weather camp during the summer of 1939, year around occupancy of Mount Mitchell is now possible, and much more work can be accomplished than has been possible in the past.

During 1938 a Civilian Conservation Corps Camp was assigned to Mount Mitchell State Park from June 11 to September 25, but work was carried on for less than twelve weeks, and accomplishments were minor and disappointing.

No Civilian Conservation Corps Camp occupied Mount Mitchell during the summer of 1939, but during this period a small detail of enrollees under Army supervision constructed permanent camp buildings and made other improvements to put the camp in condition for permanent occupancy.

On June 24, 1940 the advance detail of a full Civilian Conservation Corps Company which had been approved by the Federal Government for year around occupancy arrived at Mount Mitchell State Park. Thus, for the first time it becomes possible to carry on a continuous, well planned work program for the construction of public use facilities.

Of the three serious obstacles to full public use of and proper administration and control of Mount Mitchell State Park, one has been removed and one is about to be eliminated. Under the Act of the 1939 General Assembly prohibiting the operation of privately owned toll roads within State parks, the private toll road within Mount Mitchell State Park has been taken over by



the State. For turning this road over to the State, the operators were awarded damages of \$8,000. The problem of free public access to Mount Mitchell will be solved by the construction by the State Highway and Public Works Commission of a connecting highway between the Blue Ridge Parkway and Mount Mitchell State Park.

The acquisition of additional land for Mount Mitchell State Park is the remaining serious problem which has not been overcome. At the entrance of this park there are several acres of private land which are essential to the proper operation of the park. Until this land is acquired as a part of Mount Mitchell State Park proper treatment and control of the park will be impossible.

Facilities for public use being extremely limited, enjoyment of scenic beauty, hiking, and a limited amount of camping have been the principal recreational uses of Mount Mitchell State Park during the past two years. Because of its altitude, Mount Mitchell has also been the scene of scientific research by the Physics Departments of North Carolina State College and Duke University, and the United States Weather Bureau maintains a station atop Mount Mitchell.

*Fort Macon State Park.* Fort Macon State Park, bounded by the Atlantic Ocean on the south and Bogue Sound on the north, is on Bogue Island in Carteret County. Within the 500 acres of the park, and its most important feature, is Fort Macon, a hundred year old masterpiece of architectural beauty.

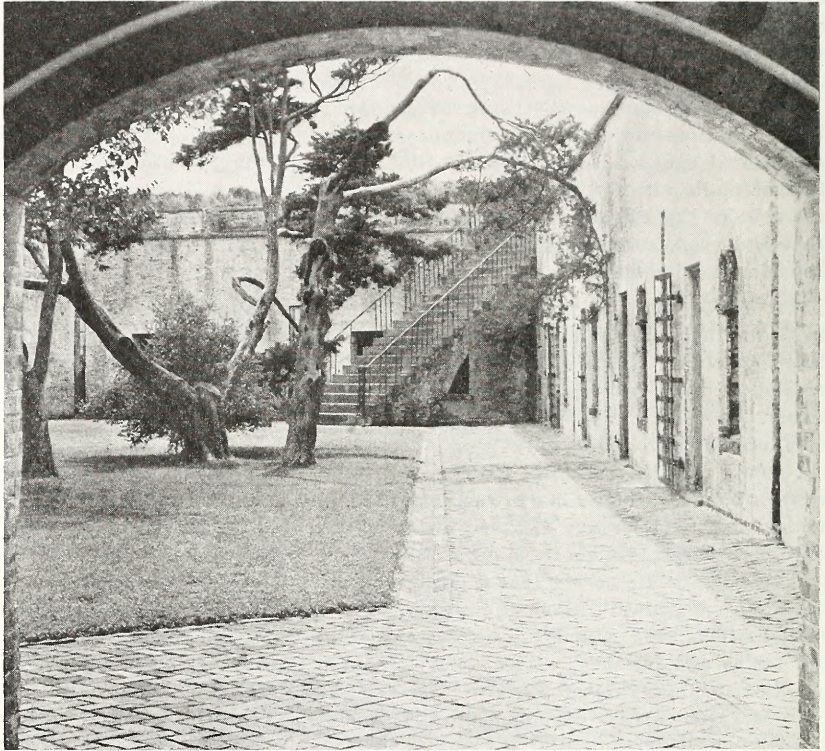
To provide for such badly needed public use facilities as a bathhouse and picnic grounds, a project for constructing a beach development near the western boundary of the park was submitted to the Work Projects Administration, and on February 23, 1940, work on this project was begun and has since been carried on continuously. As a result of this project there will be available for public use in 1941 a large modern bathhouse, parking areas for 250 cars, a boardwalk along the ocean front, water supply and sewage disposal systems, and a picnic area equipped with shelters, outdoor fireplaces and tables and benches. Some wind erosion control work also will be accomplished under this project.

To carry on further development, strong efforts have been made to secure a Civilian Conservation Corps Camp at Fort Macon State Park, but so far without success. If a Civilian Conservation Corps Camp is secured, it is proposed to do a large amount of planting and other wind erosion control work and to provide such additional use facilities as camping grounds, enlarged picnic areas, and over-night facilities. The construction of some of these will, however, be dependent upon adding more land to the park, and the means for doing this are not presently at hand.

Severe beach erosion is still taking place at Fort Macon State Park, and because of the encroachment of the ocean, the picnic shelter and toilets had to be torn down. The land on which these structures stood is now under water. To arrest erosion on the ocean side of the park, walls, breakwaters, groins, and similar expensive structures must be built, but no funds for this are available. Erosion near Beaufort Inlet on the Sound side of the park has been checked by the wooden breakwaters which were strengthened and added to during the fall of 1938.



The largest item of operation at Fort Macon State Park has been that of providing guide, information, and other services for visitors to the Fort, which is kept open during the entire year. During the calendar year 1938, 16,507 persons over 12 years old visited Fort Macon; during the calendar year 1939 12,754 persons over 12 years old visited the fort; and from January 1 through June 30, 1940 there were 4,456 visitors. Besides these, several

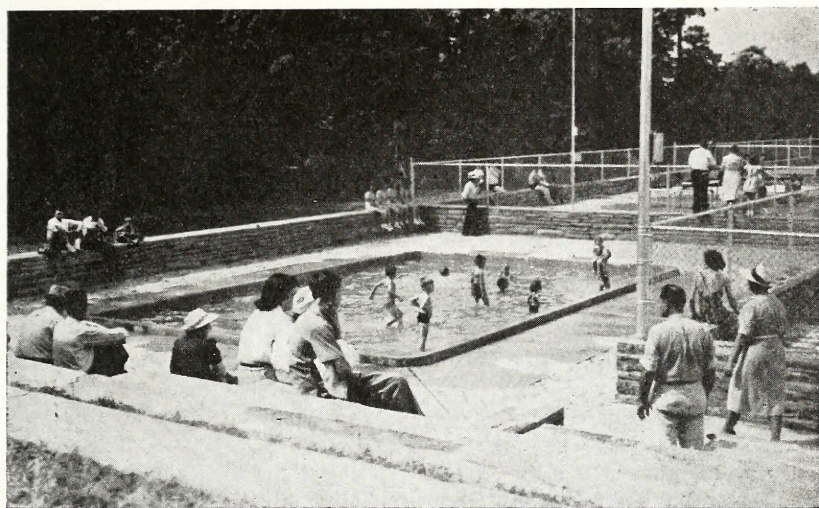


Ft. Macon, century-old fortification at entrance to Beaufort inlet, is the major attraction at Fort Macon State Park, across the sound from Beaufort and Morehead City.

thousand school children have visited the Fort in connection with their class work. These children were accompanied by their teachers, and since they came to the Fort for educational purposes, were admitted free.

Lott W. Humphrey, who had been Caretaker at Fort Macon State Park since the Fall of 1935, died on March 7, 1939, and through his death the Department suffered the loss of a valuable and conscientious employee. Since Mr. Humphrey's death, his widow, Mrs. Virginia B. Humphrey, has with the assistance of Ranger Jesse Long effectively carried on the Caretaker's duties.

*Morrow Mountain State Park.* Morrow Mountain State Park is seven miles northeast of Albemarle in Stanly County. Lying in the Uwharrie Mountains on the Pee Dee River, it is one of the outstanding scenic spots in the Piedmont. Its decidedly mountainous appearance, accentuated by sharp differences in elevation, growths of mountain laurel, and the wonderful panoramic views that may be seen from Morrow Mountain and the other hill tops within the park, its closeness to heavy population concentrations, and the developments for recreation within it, combine to make this State park one of the most used State parks in North Carolina.



Thousands of bathers are using the new swimming pool at Morrow Mountain State Park.

During the past two years much work has been completed at Morrow Mountain State Park by both the Civilian Conservation Corps and the Work Projects Administration. The Civilian Conservation Corps has completed two main water systems, one to supply water to the swimming pool, and the other to furnish water to other buildings and areas in the park. To supply water to the swimming pool a reservoir of about one and three-quarter million gallons capacity, fed by springs, has been formed by the completion of an earth dam. To carry water from this reservoir to the swimming pool 4,300 feet of 3 inch water pipe were installed. The other water system is fed from three wells and includes some 5,000 feet of pipe line and a 50,000 gallon concrete storage reservoir. Three miles of power line, almost a mile of which is underground cable, have also been built by the Civilian Conservation Corps. Among the other large items of work accomplished by the Civilian Conservation Corps are a large picnic area near the swimming pool in which is included a picnic shelter, toilets, water and sewer systems, and picnic tables; a 100 car parking area for the lodge; a



concession and storage building near the swimming pool, in the basement of which is housed the swimming pool recirculating system; construction of fire trails; construction of hiking trails; preparation of construction materials, such as quarrying and crushing stone for buildings and other construction; roadside grading and planting; planting at various buildings; construction of signs; building service roads; and fire hazard reduction.

The Work Projects Administration completed the large modern bathhouse and swimming pool during the spring of 1939, and has almost completed the construction of Uwharrie Lodge, one of the most important buildings in the park. In the lodge are included a kitchen, dining room, public toilets, assembly and lounge room, and park headquarters.

During the Spring of 1939 the State Highway and Public Works Commission improved and surfaced the approach road to the park and surfaced the entire park road system and the parking areas. This work has greatly enhanced the recreational value of the park.

Morrow Mountain State Park was officially opened for public use on August 17, 1939 and operation of the swimming pool and similar active use facilities was continued until September 17, exactly one month. During this one month, 15,734 adults and children entered the park, and of these 3,083 used the swimming pool. Morrow Mountain State Park is kept open all year, and receives some use even in the winter, but the swimming pool and some of the other facilities are operated only during the summer months when the heaviest attendance occurs. On July 1, 1940 the swimming pool and other facilities were put in operation for public use during the 1940 summer season. Besides the swimming pool and bathhouse, picnic areas, parking areas, hiking trails, and other recreational facilities were available to the public.

One of the high spots in the State parks activities during the past biennium was the official dedication of Morrow Mountain State Park to the people of North Carolina on June 29, 1940, attended by more than 5,000 persons. The exercises began in the morning with a parade in the town of Albemarle. The afternoon exercises included the dedicatory address by Governor Hoey; the main address by the Honorable Paul V. McNutt, addresses by Congressman Robert L. Doughton, R. R. Ingram, Master of Ceremonies, Coleman W. Roberts, member of the Board of the Department of Conservation and Development; and representatives of the War Department and the Work Projects Administration. Following the addresses a water carnival and bathing beauty contest were held. Much of the credit for the success of the occasion is due to the Albemarle and Stanly County members of the Park Dedication Committee, headed by Chairman R. R. Ingram, and to the Albemarle Chamber of Commerce.

*Hanging Rock State Park.* Hanging Rock State Park is in Stokes County four miles northwest of Danbury and thirty miles north of Winston-Salem. Located in the Sauratown Mountains, one of the most easterly mountain ranges of the State, it contains a great deal of rugged mountainous terrain and has elevations up to 2,600 feet. Included in the park are Hanging Rock, Moore's Knob, and Cook's Wall from which may be seen many interesting views. The clear sparkling mountain streams, water falls, and cascades, heavy growths of laurel, rhododendron, and other shrubs, and the ex-



tensive wooded area combine to make this an unusually attractive State park. Being close to such centers of population as Winston-Salem, Greensboro, and High Point, many thousands of persons will come to Hanging Rock State Park to enjoy its natural beauty and to use the recreational facilities provided in it.

In the provision of recreational facilities the Civilian Conservation Corps Camp assigned to Hanging Rock State Park has made excellent



One of many beautiful scenes in Hanging Rock State Park.

progress during the last two years. Upon the completion of an earth dam and a concrete dam during the summer of 1938, a 12-acre lake was impounded. To provide for the recreational use of this attractive lake, a large stone bathhouse with checking facilities for 1,000 persons has been completed, a large diving tower has been built, and a sand beach and a protected water area have been made in front of the bathhouse. The upper link of the park road leading to the lake has been completed, and a 100 car parking area has been built near the bathhouse.

To provide pure water for the bathhouse and other use areas, a concrete dam impounding half a million gallons of water was built, and two miles of water line were laid to the bathhouse, to the main picnic area, and to

other parts of the park. A large sewage disposal system was installed to serve the bathhouse and other proposed nearby buildings.

Since picnicking will be a major activity at Hanging Rock State Park, careful attention has been given to the provision of picnic grounds. On one of the main ridges a large picnic shelter, sanitary toilets, a sewage disposal system, a barbecue shelter, tables and benches, drinking fountains, and many other conveniences have been built to form a large well equipped picnic area. Near by, and located so as to serve the bathhouse, a parking area which will hold 350 cars is being built. All of the heavy grading for this parking area has been done and surfacing with stone has been begun.

In addition to these major construction jobs, considerable work has also been done on constructing and improving foot trails, roadside improvement, removal of fire hazards, quarrying stone and cutting timber for construction purposes, and planting and other landscape treatment of completed buildings.

Although the surveying and preparation of plans for the completion of the park road system have been practically completed, the additional land needed for the park road right-of-way has not been secured, so it has been impossible to begin the construction of the rest of the park road system. The Department will continue its strenuous efforts to secure the necessary right-of-way, and it is hoped that the road can be completed in time for use during the summer of 1941.

Because the park road system is not completed, satisfactory arrangements for handling traffic could not be made, and the recreational facilities have not been opened for public use. Visitors are permitted to enter the park, however, to enjoy its natural beauty and to use the foot trails.

Besides the land needed for the road right-of-way, considerable other land must be added to the park, but no funds have been available to make the necessary land purchases. Until several of these tracts have been acquired, the provision of service buildings will not be possible; other tracts are needed for scenic protection.

*Cape Hatteras State Park.* Cape Hatteras State Park is on the renowned North Carolina "banks" in Dare County 30 miles south of Oregon Inlet. Included in the area of this park is Cape Hatteras, well known to all mariners, and adjacent to the park is Cape Hatteras Lighthouse now under the jurisdiction of the National Park Service.

Since Cape Hatteras State Park will become a part of the proposed Cape Hatteras National Seashore, only such work as will not conflict with the proposed treatment of the National Seashore has been carried on by the Civilian Conservation Corps Camp assigned to the park. Pursual of this policy has resulted in the provision of considerably fewer public use facilities than would have been built if Cape Hatteras State Park were being developed as a unit of the North Carolina State Park System.

Because erosion control and restoration of the area as nearly as possible to a natural state are of prime importance whether it is a State park or a part of the National Seashore, sand fixation and erosion control work have continued to be a major part of the work program. Important items of this work have been the erection of fences of brush and other material to form protective dunes, and the planting of native trees and grasses to



stabilize moving sand. To insure an adequate supply of planting material, loblolly pine, yaupon, American beauty berry, and other native plants have been grown in considerable quantity in the nursery at Cape Hatteras State Park. Besides the erosion control work, the Civilian Conservation Corps has begun the construction of a road from the Cape Hatteras Lighthouse to Cape Hatteras Point; painted and repaired the Cape Hatteras Lighthouse; repaired and remodeled the lighthouse dwellings so that they can now be used by vacationists; and constructed water supply and sewerage disposal systems to serve the lighthouse building. On the State park five vacation cabins together with the water systems to serve them have been finished, but because of uncertainty as to how long the State will have jurisdiction over the park the cabins have not been equipped or opened for public use.

To increase the usefulness of Cape Hatteras State Park as a wildlife sanctuary (all the North Carolina State Parks and Recreational Areas are wildlife sanctuaries), a nesting refuge for terns was built near the point of Cape Hatteras. Tern nests are merely small hollows in the sand and are not easily seen by those unfamiliar with the nesting habits of this bird, so eggs are sometimes unwittingly crushed by being walked on or driven over. To avoid this unintentional destruction, several acres of suitable nesting ground were enclosed with artificial sand dunes to form the nesting refuge.

*Jones Lake Recreational Area.* Jones Lake Recreational Area is a part of the Bladen Lakes Land-Use Area, which under the agreement with the Federal Government described on Page 79 is administered by the Forestry Division. This recreational area located on Jones Lake is maintained and operated exclusively for Negro use. Among the major facilities available are a large well equipped bathhouse; a protected water area in the lake; a boathouse, and row boats which may be rented for use on the lake; shelters, outdoor fireplaces and other facilities for picnicking; ample parking areas; and a refreshment stand.

Opened to the public on July 1, 1939, this recreational area for Negroes achieved an immediate popularity which clearly demonstrated the need for outdoor recreational facilities for Negroes. Users of this area came from such distant points as Greensboro and Winston-Salem, as well as from a number of places in the eastern part of the State. They arrived in all manner of conveyances: private cars, taxis, trucks, and trailers equipped with church pews. Groups of several hundred were common. Although no continuous count was made of visitors, it is estimated that at least 22,000 came to the area between July 1 and September 17 when operation of the bathhouse, concession and other facilities was terminated. During this period there were 4,370 paid admissions to the bathhouse, and many persons who did not use the bathhouse used the lake and beach. Boats were rented for a total of 710 hours, the concession was heavily patronized, and a large number of persons picnicked.

The success of the first season of operation was due partly to the policy of employing Negro personnel, and the same personnel was employed during the season of 1940. It is expected that attendance and use of the area will be greatly increased during 1940.



*Singletary Lake Group Camp.* Singletary Lake Group Camp is also a part of the Bladen Lakes Land-use Area. On this area, which is operated entirely for group camping, is a completely equipped group camp with accommodations for 100 persons. Being on Singletary Lake, it affords excellent opportunity for swimming and other water sports.

This area was opened for public use during the summer of 1939, and received patronage from Boy Scouts, 4-H Clubs and similar organizations. It has been reserved for most of the summer of 1940 by these and other organizations.



"Somerset," the manor of the old Scuppernon Plantation in Pettigrew State Park, is an interesting example of colonial architecture.

*Pettigrew State Park.* Pettigrew State Park was established on April 8, 1939 when a ninety-year lease to the State for some 200 acres of land on the shores of State-owned Phelps Lake was signed on behalf of the Federal Government by the Secretary of Agriculture. This park, named after General James Johnston Pettigrew, who is buried in a family graveyard within the boundaries of the park but not a part of it, is of considerable historic interest. The park is located on portions of two fine old plantations, "Bonarva" and "Somerset," which flourished from the late seventeen hundreds until the Civil War. Bonarva Plantation was established about 1775 by James Pettigrew who came to this country from Ireland in 1740; and Josiah Collins of Somersetshire, England, established Somerset Plantation about 1780. Among the remaining buildings is the Collins House, "Somerset," the manor of Somerset Farm. This house, an interesting

example of colonial architecture adapted to a particular location, was built on the shore of Lake Phelps by Josiah Collins in 1805.

The most striking architectural feature of Pettigrew State Park is the Collins barn. This four-story structure, still in a good state of preservation although many of its interior timbers have been removed, was built by slave labor. Its size, intricate system of trusses, and excellent workmanship make the great barn unique in North Carolina.

State-owned Lake Phelps, one of the most beautiful of North Carolina's natural lakes, adds greatly to the natural beauty of the park. In this 16,600-acre lake black bass and other species abound.

Early in 1937, through the coöperation of the Farm Security Administration, plans were prepared for the restoration of the Collins House and the other buildings, for the conversion of the Collins House into an inn, and for the construction of a boat dock, parking areas, and water and sewer systems. To carry out these plans, a Work Projects Administration Project was submitted, and it is expected that most of this work will be completed by the summer of 1941.

*Sandhills Recreational Area.* The Sandhills Recreational Area is a part of the Sandhills Land-Use Area turned over to the Department at the same time and under the same conditions as was the Bladen Lakes Land-Use Area. Responsibility for the operation of this area was assumed by the Forestry Division on July 1, 1939.

Sandhills Recreational Area is, as its name implies, in the famous Sandhills resort section of North Carolina. Located in Richmond County on United States Highway No. 1, 12 miles south of Aberdeen, it is well adapted for vacation use, and the mild winter climate makes it particularly suitable for winter use.

The major public use facilities on this area are 10 completely equipped and furnished vacation cabins suitable for individual or group use, a small lake and sand beach for the use of cabin occupants, and the assembly and recreational lodge which may be used for meetings and gatherings of various kinds.

*Millstone Rocks Group Camp.* Millstone Rocks Group Camp, also on the Sandhills Land-Use Area, is located on an attractive artificial lake, and has complete accommodations for one hundred campers. This group camp was leased by the Department to the North Carolina Agricultural Extension Service of the North Carolina State College on March 4, 1940 for a term of five years for the use of the 4-H Clubs of the State.

*Town Creek Indian Mound.* Under the joint direction of the Department, the State Museum, the University of North Carolina, and the North Carolina Archaeological Society, and with funds furnished by these agencies and by the Work Projects Administration, a great deal of archaeological work has been done at Town Creek Indian Mound during the past two years. Excavation and research have brought to light much Indian archaeology of great interest, and the proposed enlargement of the area and construction of a museum is needed to preserve properly and exhibit to the public this interesting material.

*Crabtree Creek Recreational Area.* Crabtree Creek Recreational Area is located in Wake County on Highway 70A about mid-way between Raleigh and Durham. It is being developed with Federal funds under the joint direction of



the Department and the National Park Service, and has so far been operated for public use by the National Park Service. However, at some future date it is proposed to turn this area over to the State for administration, operation, and maintenance by the Department.

Crabtree Creek Area is divided into two sections—Crabtree Creek section for white people, and Reedy Creek section for the use of Negroes. Each section is being developed to provide for both group camping and day-use. On the Crabtree Creek Section three complete group camps have been developed on a 21-acre lake. Each camp includes camper and leader cabins, sanitary facilities, staff quarters, infirmaries, craft shops, recreation and dining halls, and swimming docks and other provisions for water activities on the lake. For day use a small temporary picnic area has been built. On the Reedy Creek Section a complete group camp for Negroes has been finished and will be occupied during the entire summer season of 1940.

Adequate picnic areas, a recreational lake, bathhouse, parking areas, trails and other facilities for day-use are urgently needed in both Crabtree Creek and Reedy Creek sections of this area. To construct these a Civilian Conservation Corps camp has been assigned to Crabtree Creek Recreational Area and is expected to be established during the latter part of the summer of 1940.

*State Lakes.* The administration of Jones, Singletary, Salters, and Black lakes has been made much easier and efficient by the establishment of the Bladen Lakes Land-Use Area; and with the establishment of Pettigrew State Park, the administration of Phelps Lake in Washington and Tyrrell counties also involves fewer problems. The main stumbling block to the good administration of White Lake and Lake Waccamaw is that these lakes are entirely surrounded by private lands.

Conditions surrounding White Lake have not improved, and the control of boats on White Lake is still a serious problem and numerous complaints have been received about the operation of speed boats on the lake. To bring about proper use of White Lake, a Lake Warden was started on duty in June 1940, and during that month did much to correct some of the conditions about which complaints had been received. One of his major duties is to make a complete investigation and study of the use of White Lake so that administrative plans can be made to provide for the maximum pleasure of those who use the lake.

#### *Park, Parkway and Recreational Area Study*

Realizing that intelligent planning of a comprehensive State park and recreational area system that will adequately serve present and future needs must be based on analyses of pertinent data, the Forestry Division, in cooperation with the North Carolina State Planning Board and the National Park Service, has made a careful study of recreational needs in North Carolina. This Park, Parkway and Recreational Area Study, which was carried on with the assistance of a Work Projects Administration Project, is soon to be published.

In the report have been assembled and analyzed such basic data as population characteristics, scenic resources, and recreational resources. On the basis of the study of these data, recommendations have been made in the report for the acquisition and development of new State-owned areas, for the administration of the State park and recreational area system, and for operating policies.



### *Educational Program*

To bring to the people of North Carolina a better knowledge and appreciation of their State parks, the Forestry Division has begun to build up a motion picture library of subjects relating to State parks. Such films as have been completed have been shown to a number of groups and organizations. Pamphlets containing information on the State parks have also been distributed.

### *Park Use Study*

The Forestry Division, with the coöperation of the North Carolina State Planning Board and the National Park Service, and with the assistance of a Work Projects Administration Project, completed a careful study of public use of state parks during the year 1938. This study has furnished a much clearer picture of state park use in North Carolina, and has been valuable in planning recreational developments in State parks and recreational areas.

### *North Carolina State Parks Regulations*

At its January 1939 meeting, the Board of Conservation and Development approved a comprehensive set of regulations governing the use of the North Carolina State Parks. These regulations were carefully drawn-up to (1) protect the State parks and recreational areas from misuse and abuse; (2) make the public's use of them more enjoyable. Because the public has readily realized the intent of the State Parks Regulations, observance of them has been excellent.

### *Recommendations*

During the past two years progress has been made toward the establishment of a State park and recreational system, and development for public use of the present units of the system has been carried forward fairly well. It is apparent, however, that the present State park and recreational areas are so few and far between that they serve only a part of the State's population, that facilities for most forms of public use are inadequate, and that facilities for some forms are entirely lacking. No progress has been made toward bringing into public ownership important scenic, scientific, and historic areas which are of such importance that they should be protected and preserved for present and future generations.

Careful study of recreational needs in North Carolina reveals that a great deal of work remains to be done to provide for the people of North Carolina a system of State parks and recreational areas that will adequately meet their needs and desires. To accomplish this highly desirable end, adequate funds are necessary and it is therefore, recommended that the necessary funds be provided either by legislative appropriation, or by bond issue, to accomplish the following:

1. Acquire additional land for Mount Mitchell and Hanging Rock State Parks, Crabtree Creek Recreational Area, and Town Creek Indian Mound.
2. Establish and develop for public use in the following new State parks and recreational areas:

*For the White Population:*

- A. State park in Carteret County adjacent to and combined with Fort Macon State Park.
- B. State park on the Atlantic Ocean in New Hanover or Brunswick Counties.
- C. State recreational area in Greene, Pitt, Lenoir, Edgecombe, Wayne, or Wilson County.
- D. State park in Alexander, Caldwell or Burke County.
- E. Recreational area on shores of White Lake.
- F. State park in Henderson or Transylvania County.

*For the Negro Population:*

- A. State park or State recreational area in the Piedmont, probably in the southern part of Davidson County or in Randolph County.
- B. State park on the Atlantic Ocean, north of Wilmington and south of Carteret County, centrally located to the Negro population in the Coastal Plain Counties.
- C. State Recreational Area in Greene or an adjoining county,

The administration, operation and maintenance of State parks and recreational areas so as to preserve their inherent values, protect the investment made in them, and provide adequate intelligent service to the public, is a specialized task requiring technically trained personnel as well as the necessary funds for supplies, materials, equipment, and other items necessary in the operation and maintenance of the State parks and recreational areas. To insure efficient execution of the duties of the Branch of State Parks, it is recommended that the State Park Budget for the next fiscal biennium be sufficiently increased to provide for:

- 1. The employment of an engineer and an architect.
- 2. The employment at each individual area of the personnel necessary to efficient protection, operation, and maintenance.

*Acknowledgments*

As during previous years, by far the greater part of new construction at and improvement of the State parks has been through the expenditure of Federal funds. Without the coöperation of various State and Federal agencies much of the progress made during the past two years would have been impossible. Among the organizations to which thanks are especially due are:

CIVILIAN CONSERVATION CORPS which has maintained camps at Mount Mitchell, Morrow Mountain, Hanging Rock, and Cape Hatteras State Parks.

NATIONAL PARK SERVICE which has jointly supervised with the Department the work of these Civilian Conservation Corps Camps, has actively coöperated with the Department in the development programs at the various parks, has supplied valuable technical advice and assistance, and has coöperated in carrying on the Recreation Study.

WORK PROJECTS ADMINISTRATION which has supplied funds and labor for the construction of the swimming pool, bathhouse and lodge at

Morrow Mountain State Park, and personnel with which to carry on the Recreational Study, and is now supplying funds and labor for the bathhouse and beach development at Fort Macon State Park.

NORTH CAROLINA STATE HIGHWAY AND PUBLIC WORKS COMMISSION which surfaced the approach roads to and the park roads and parking areas in Morrow Mountain State Park.

NORTH CAROLINA STATE PLANNING BOARD for assistance and coöperation in the Recreation Study.

Many individuals not connected with Federal or State organizations have contributed time and effort to the Department and to these the Department extends grateful acknowledgment.

### FOREST MANAGEMENT

#### *Clayton Nursery.*

The greatly increased demand for forest tree seedlings of all species made it essential that the two nurseries be put under efficient management as rapidly as possible. Moody Clemmons who had previous experience at the Clayton nursery was appointed nurseryman July 1, 1938 and has served with satisfaction through the biennium. Practically all the work at the nursery is still being done by the CCC from the side camp located on the property. However, during the height of the weeding season an average of 25 Negro women have been used daily over a period of three or four weeks in order to supplement the CCC labor.

A number of improvements, expanding the production capacity, have been made at the Clayton nursery. Some 10 acres of water system have been erected during the past two years and materials bought for five additional acres. This will bring the total area covered by watering system at Clayton to 22 acres. This was all done through coöperation of the CCC. The supply of water for the trees has been a critical problem, the deep well pump having needed repairs on several occasions. This prompted the building of a 400,000-gallon surface reservoir which is now completed except for the concrete facings on the inside. To supply water for the reservoir in addition to the deep well pump two surface wells were dug with a joint capacity of about 6,000 gallons. A booster pump was purchased and a pump house erected by the CCC to utilize water from the reservoir. A new three-room office has been erected on the south side of the highway on the site of the first building erected in 1928, a miniature tool house and packing shed combined. Three old temporary buildings have been torn down and removed. An Oliver 80 tractor was purchased by the State; and a seedling lifter and bed shaper were constructed, all of which have greatly reduced the man-days needed in nursery operations. The fiscal year 1939-40 was the first year of active operation under the agreement with the CCC for payment of labor charges for raising seedlings for large landowners. For that year the State paid \$1,060 to the Federal Government. Constant effort is being made to improve the soil conditions and some 240,000 pounds of surplus tobacco were plowed under in addition to the use of velvet beans for a cover crop on the areas under rotation. It is estimated that there will be a crop of five million trees for 1940-41 planting season.



Under an act passed by the last legislature providing for the purchase of small demonstration forest areas, a tract of 200 acres was bought for \$3,000. This tract which adjoins the present Clayton nursery on the north will be used only to a small extent for the production of nursery seedlings. Its chief value will be for the establishment of forest planting and forest cutting demonstrations. It is estimated that there are some 100,000 board feet of timber on this area. Plans for its development are underway.

#### *Mountain Nursery.*

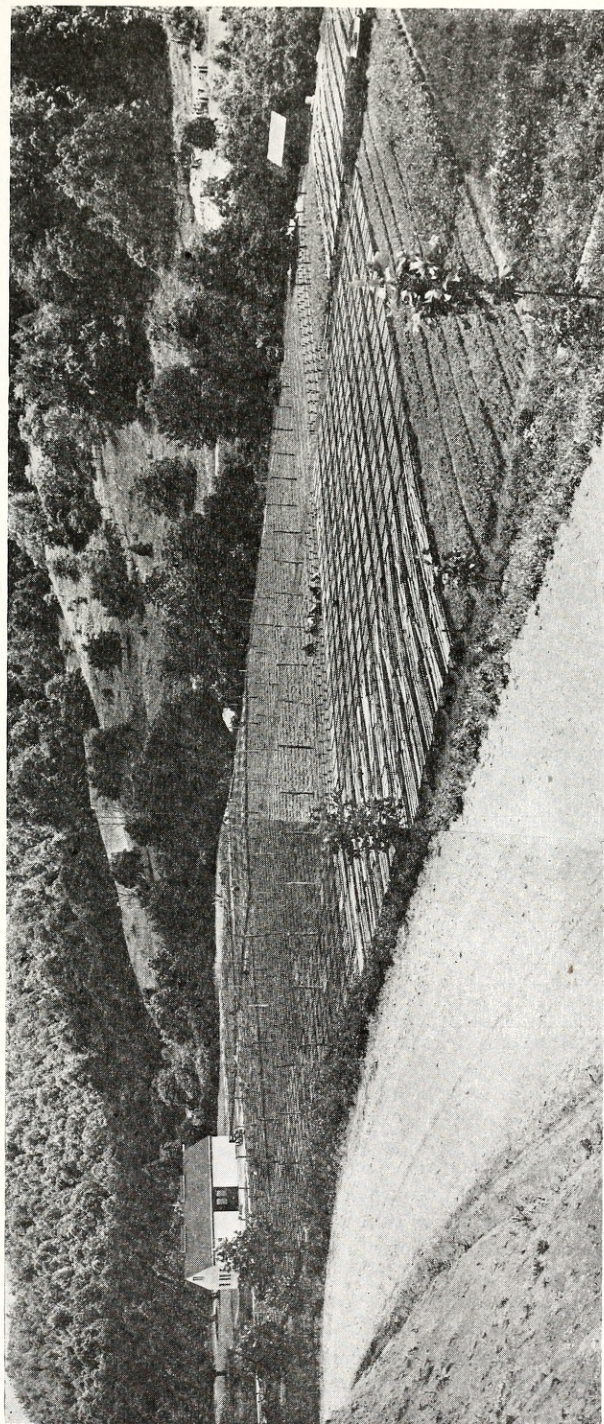
Although the land for the mountain nursery located on Crab Creek between Hendersonville and Brevard was purchased with State funds, the development from the beginning has been almost entirely by the Federal Government, chiefly by the CCC. Following the construction of the pump house, the storage depot was completed in April 1939 and the five-room nurseryman's cottage with basement and furnace was turned over by the CCC to the State in September 1939. This cottage was not occupied until March 1940 when Phillip Griffiths, recently appointed forester in charge of the nursery, moved in with his family. Mr. Griffiths is a graduate of the forestry school of N. C. State College with two or three subsequent years of experience in forestry and other business endeavors. His appointment became effective February 26, 1940, since which time he has not only supervised the work at the nursery but has advised landowners of the region and has taken the message of forestry to the children of a number of schools in the region.

The first distribution of forest tree seedlings from this nursery was made during the planting season of 1939-40. This consisted of 469,000 seedlings of which 431,433 were two-year-old white pines. While the technique of growing white pine is somewhat different from that of growing more southerly species of pine, the practice is being improved all the time. However, some trouble has been experienced in damping off, root rot, and in depredations from birds and a species of white grub.

Before adequate production can be secured at this nursery additional suitable land will have to be secured. Unfortunately repeated efforts to purchase adjoining areas have so far ended in disappointment. As an emergency measure 1½ acres were rented adjoining the nursery on the east.

#### *Forest Management—Private Land.*

This phase of the work has received great impetus during the last biennium. The U. S. Forest Service agreed to lend the Department a technical forester, whose time was to be devoted to forest management work on private lands. Roger D. Huff, who had several years experience with the U. S. Forest Service, reported for duty on November 7, 1938. For the first eight months of his work both his salary and expenses were paid by the Federal Government with the understanding that the State share the cost as soon as funds could be made available. On July 1, 1939 the Department assumed the responsibility for his field expenses and he was provided with a pickup. Since his assignment to this work the demand for his services has greatly increased and most of his time has been spent in the field. During his association with this Department 202,000 acres have been reported on and in most cases the recommendations have



Panoramic view of Crab Creek State Forest Nursery, Henderson County. Shows 2-year white pine, 1-year white pine under shade and yellow poplar. Combined equipment depot and packing shed at left. Pump house and excavation for nurseryman's cottage extreme right. All labor supplied by Civilian Conservation Corps.



TABLE I  
DISTRIBUTION OF FOREST TREE SEEDLINGS BY SPECIES

Species	1936-37	1937-38	1938-39	1939-40
Loblolly Pine.....	438,700	1,384,590	1,194,675	856,425
Shortleaf Pine.....	25,250	193,550	314,600	261,200
Longleaf Pine.....	84,087	269,825	414,675	512,050
Slash Pine.....	39,600	164,368	126,050	27,825
Black Locust.....	97,800	194,260	180,625	70,885
Tulip Poplar.....	144,760	182,081	32,451	64,075
Black Walnut.....	18,225	22,174	29,614	24,179
Miscellaneous.....		3,668	45,525	15,750
Cypress.....	72,900	52,150		106,390
Ash.....	5,300	7,287		
Cedar (Red).....	1,450	15,788	7,445	149,330
White Pine.....				431,433
TOTAL.....	928,072	2,489,741	2,345,500	2,519,542

TABLE II  
DISTRIBUTION OF FOREST TREE SEEDLINGS BY CLASS  
OF COOPERATORS

Class of Coöperators	Biennium 1938-1940		Total 1926-1940	
	Number Coöperators	Number Trees	Number Coöperators	Number Trees
Farmers.....	773	2,268,439	1,948	5,105,135
Companies.....	12	811,450	61	1,415,264
Schools.....	7	133,000	264	1,035,469
State.....	5	302,715	57	660,094
Boy Scouts.....			30	14,680
4-H Clubs.....	36	26,352	2,476	157,623
Municipalities.....			7	146,674
Soil Conservation Service.....	1	600,000	1	3,617,040
Other.....	26	312,736	28	1,346,486
U. S. Forest Service.....	3	410,350	3	910,390
	863	4,865,042	4,875	14,408,855

been followed. These comprise some 61 coöperators. In some cases the owners of sawmills have requested forest management advice for the people who were selling them timber. Those tracts which have been cut-over in accordance with the forester's recommendations in this branch of the Department have attracted very favorable attention. It is felt that this service is already saving the citizens of the State thousands of dollars each year.

One of the recent pressing problems in forest management on private land in North Carolina is the increased use of the southern pines for pulpwood. Some 430,000 cords of this product are removed from the wood-



lands of the State each year. As trees of small diameter can be utilized, without careful supervision much harm can be done to young growing timber. With this in mind close contact has been kept with the pulpwood contractors operating within the State and considerable progress has been made in improved cutting practices. Some pulpwood contractors and pulpmills have employed foresters to mark timber on private holdings. The use of this small and low grade pine if taken from the suppressed, badly formed or diseased trees should give great impetus to forestry. On



Loblolly pine plantation of 5½ acres on State Hospital property near Goldsboro. Trees were grown at the State Forest Nursery and planted in the spring of 1928. Thinned after picture was taken in November 1938. This produced 20 cords of fuel wood and 42 cords were left growing.

the other hand clear cutting or the use of the larger sizes and better grades of timber for pulpwood will greatly disrupt the forest economy of the State. An encouraging feature is that the efforts to get foresters employed by large landowners, pulpwood contractors and timber buyers, has been successful in several instances.

In order to keep abreast with timber utilization practices and trends, constant study and investigations are being made in coöperation with the U. S. Forest Service on prices, grades and cutting practices in the varied fields of forest use. Such information is being systematically filed and will be made available to the public upon request.

#### *Forest Management—Land-use Areas.*

Upon the signing of the agreement with the Secretary of Agriculture on February 24, 1939 by the Director of this Department, the land-use areas known as Bladen Lakes and Sandhills came under the Department's management. The Bladen Lakes area of 35,000 acres was designated as prima-

rily a forest and recreation area and plans were made for immediate operations and administration. The day after the agreement was signed the planting of 210,000 longleaf pine seedlings grown in the Clayton nursery was started under direction of the Forestry Division, enrollees from the nearby CCC camp doing the work.

On October 1, 1939 the appointment of the Area Forester, L. H. Hobbs, a graduate of State College Forestry School, with several years experience in forestry became effective and he took charge of the area although some officials of the SCS remained on the area until after January 1, 1940 completing projects initiated by the Government.

In February 1940, 85,490 trees consisting of 80,040 cypress, 4,450 yellow poplar and 1,000 black walnut were planted. A preliminary planting plan and planting report have been made for the area. This shows that in excess of 400 acres need forest planting. The CCC camp at White Lake is now working on a timber type map of the general region and when this is complete a timber cruise and management plan will be made for the area. A boundary surveying project was also started by the CCC and 10 miles have already been marked and concrete corners set.

There were at the time this Department took possession of the area, 35 houses of all descriptions and conditions. A policy was worked out whereby those houses unfit for habitation and beyond economical repair would be destroyed. In carrying out this plan 10 buildings were obliterated. There now reside on the area 3 families not employed by the State. Every consideration has been given these tenants so that no hardship will ensue from any of the policies agreed upon. There are also 4 men employed by the State, residing in Government-owned houses located on the area.

A policy of public use under permit somewhat similar to that practiced on National Forests, has been adopted, both free and fee permits being issued. Eighty-six special use permits were issued up to July 1, 1940. These included the names of 246 persons who were allowed to pick blueberries on the area free of charge.

The sale of products from the area consisted of 55.1 cords of lightwood, 542 railroad ties and some miscellaneous materials. Total forest product receipts for the fiscal year 1939-40 amounted to \$175.62. Some 2,859 white cedar posts of different sizes were salvaged from a white cedar swamp which was burned over several years ago; these will be either sold or used on other projects.

Within a few years it is the goal of the Forestry Division to make the Bladen Lakes Land-use Area an outstanding demonstration of what fire protection and proper forest management can accomplish on land too poor for profitable agriculture.

Less has been done in the way of forest management on the Sandhills Land-use area, but the possibility of the development of this 70,000 acre property into a splendid public forest unit is exceptionally good. A large portion of the area contains young timber of much potential value. It is planned to have the CCC\* make a timber type map of the area which will be a basis for a timber cruise and forest management plan. Plans have also been made for extensive improvement cuttings, some of which will serve as

\* A full Forestry CCC Camp has been erected on this area and was occupied on September 3, 1940.



demonstrations. The project which at present is most urgently needed is a boundary survey of all exterior lines. Several trespass cases have emphasized this need. At present one man is specially employed to cover the area and to check on timber trespass violations. It is planned to employ an Area Forester as soon as necessary funds can be made available.

### PUBLIC FOREST PROGRAM

*State Forests.* The acquisition of woodland areas as State Forests, where under natural conditions the Department can experiment and demonstrate to the landowners methods and results of management suitable to the several forest regions of the State, has long been advocated. Such State Forests, carefully selected, are a necessary part of such a long-time forestry educational program. Several ways of acquiring land for the establishment of State Forests seem to be open to the Department.

In order to insure economy in direct purchase of land it is advisable to give the Department authority and available funds to proceed, without special legislation in each individual purchase. Tying down an appropriation to a special purchase may mean paying a price much in excess of the market value of such property or else failing to acquire land which is essential to the project. The public's interest must be the first concern of the State.

Some small amounts of forest land have necessarily been acquired with the two forest nursery tracts in Johnston and Henderson counties, which it is planned to handle as demonstration forests. In the spring of 1940 the two-hundred-acre tract owned by R. W. Winston, Jr., adjoining the Clayton Nursery on the north, came into the market and through transfer of some unexpended funds the Department was enabled to complete the purchase of this tract at a price of ten dollars per acre, plus allowance of \$500 for standing timber, \$300 for a small cottage, and \$200 for cleared land under cultivation. This tract, lying half in Johnston and half in Wake counties, will be used for experiments and demonstrations in forest planting and woodland management.

Efforts to acquire a similar area adjoining the mountain nursery have so far failed, but further steps will be taken later to secure the necessary enlargement of this property.

*Land Use (Resettlement) Areas.* The Federal organization for the acquisition and development of submarginal land areas, begun in 1934 as part of the AAA program, later became the Resettlement Administration. In January 1937 this became a bureau of the Department of Agriculture and in the fall of that year the Land Utilization Division was placed in the Bureau of Agricultural Economics.

After operating for a while in this bureau, the Land Utilization Division was transferred in October 1938 to the Soil Conservation Service, with headquarters at Atlanta and it was through this bureau of the Department of Agriculture that the transfer of responsibility for the administration of the cooperative Land Use Areas to the State was finally accomplished.

The agreement under which the State of North Carolina, through the Department of Conservation and Development, took over the administration of the Sandhills Land Use Area in Richmond and Scotland counties, and



the Bladen Lakes Land Use Area (acquired as the Jones and Salters Lakes Land Use Project) in Bladen County, was signed by the Director of this Department, R. Bruce Etheridge, on February 24, 1939, and by the Secretary of Agriculture, Henry A. Wallace, April 28, 1939. These two areas were officially taken over July 1, 1939, though some unfinished projects necessitated the presence of one or more federal officials until January 1940.

In submitting this agreement the Secretary of Agriculture designated the United States Forest Service as custodian for the Bladen Lakes Area and the United States Biological Survey as custodian of the Sandhills Area. This Department would therefore be responsible to and report to them in carrying out the requirements of the agreement. Unfortunately about this time the President transferred the Biological Survey from the Department of Agriculture to the Department of the Interior. It later developed that this change would necessitate the execution of a separate agreement for each area; so these have been submitted as signed by the Secretary of Agriculture June 29, 1940, and by the Director of this Department for the State July 15, 1940. These two agreements contain all of the provisions of the original agreement and make no change whatever; the two being identical except that in the one covering the Sandhills Area the paragraph relating to "Wildlife" is put first while in that covering the Bladen Lakes Area "Forestry" is given precedence.

As forestry is the preferred activity on the Bladen Lakes Land Use Area, Sections 1 and 2 of the Coöperative and License Agreement between the United States of America and the State of North Carolina covering this area are incorporated herewith for the information of the public.

"1. The United States hereby grants a license upon and makes available to the State, for the purposes and subject to the terms and conditions hereinafter set forth, those portions of the property acquired or to be acquired in connection with the Jones and Salters Lakes Project, LA-NC-4, as may be described in the exhibits hereafter referred to, together with all improvements which are located thereon (hereinafter referred to as the property). The property already acquired by the United States in connection with said project, which is to be made subject to the terms and conditions of this license and agreement, is described in Exhibit "A," and the property to be acquired by the United States in connection with said project, which is to be made subject to the terms and conditions of this license and agreement, is described in Exhibit "B," such exhibits being attached hereto and expressly made a part hereof. The property described in Exhibit "B," or any part of such property, shall become subject to all the terms and conditions of this license and agreement or any renewal thereof when title thereto has vested in the United States, but not before such time. The United States will notify the State in writing when title to any of the property described in Exhibit "B" has vested in the United States.

It is agreed that the property involved herein may be designated as the "Bladen Lakes Land Use Area."

2. The State shall use said property in accordance with the following purposes and management practices:

(a) *Forestry:*

Forestry practices shall be of such character as to maintain the forest lands in a productive condition; the lands shall be managed to produce sustained and periodic growths of forest products; utilization practices shall be administered to prevent waste; management practices shall be applied so as to secure the best growth of desirable species; a planting program consistent with the wildlife and recreational purposes of the project shall be established to provide appropriate forest cover on existing open land, the planting to be carried forward as rapidly as funds permit. The State shall provide adequate forest protection, including a satisfactory system of truck trails, fire breaks and other essential improvements, and fire suppression equipment.

The sale of timber or any other products in excess of \$100 in value shall be advertised and made to the highest bona fide bidder. The right to reject any or all bids shall be reserved by the State.

(b) *Wildlife:*

Wildlife management practices shall be of such character as to maintain the lands in a productive condition from the standpoint of wildlife; the lands shall be managed to effectuate a balanced wildlife population; the forest management practices shall be so planned as to assure reproduction of desirable species; a planting program shall be established to provide appropriate food and cover. In effectuating these purposes, adequate provision shall be made for controlled public hunting and fishing, including the establishment of State Wildlife Refuges to include areas designated as State Game Refuges and marked on the ground by a single strand of wire.

(c) *Recreation:*

The State shall operate, maintain, and administer the existing and subsequently developed recreational facilities for the use and benefit of the general public, any fees charged for such public use to be non-discriminatory and consistent with the public non-profit character of the areas. The predominant recreational uses shall include picnicking, camping, bathing, winter sports, use of vacation cabins and other similar activities. Any recreational facilities that may be subsequently developed shall be consistent with the other uses of the land.

## (d) Vacant buildings acquired with the land and not required in the operation of the project and which may be occupied by squatters or may be a source of other hazards are to be removed or demolished. The salvage material or entire buildings may be used or disposed of by the State in effectuating the purposes set forth in the preceding paragraphs of this section. Any of these salvage materials or buildings may be used by the State on lands owned or controlled by it in the administrative area of which the lands included in this agreement are a part.

## (e) The combined uses, including forestry, recreation, and wildlife, shall be effectuated in accordance with standard technical practices.

## (f) The provisions set forth in this section may be modified from time to time by mutual consent of the United States and the State."



In accordance with the terms of the agreement and with the State law providing for its acceptance (Chapter 226, Public Laws of 1935) it will be necessary to secure the authorization of a special fund to which all receipts will be credited and from which annual balances may be carried forward. Such receipts can only be used for necessary expenses in the administration, maintenance, improvement or enlargement of the area in question. It seems unlikely that any excess of receipts over expenditures can be expected for a number of years.

*Optioned Lands.* The transfer of the lands in Bladen County acquired by the Department under Chapter 228, Public Laws of 1937, listed in the last biennial report, page 88, has been held up on account of certain flaws which were discovered after the options to the Federal Government had been executed. In order, therefore, to clear title to two tracts clouded by homestead exemptions, which the State is unable to do, condemnation of four tracts has been undertaken by the federal authorities as follows: Christian McKay, Betsy Wright, and the two Bullard tracts, legally known as "National Land Exchange." It would seem probable that final action will be taken to clear title to the United States within the next few months.

The option to the Barney Coe or Mike C. Burney Tract (No. 1207) was accepted by the Federal Government and a United States Treasury check for \$740 was received August 11, 1939, and deposited in the State Treasury as a credit against the \$10,000 appropriated for this purpose in 1937.

*Farm Security Administration.* The acquisition of submarginal land in the new Land Use Area in Caswell County has proceeded slowly, only small allotments of funds having been made to the Farm Security Administration for this project. The area consists of very severely eroded farm lands on the watersheds of Country Line, Hyco, and other creeks tributary to the Dan River. Forest improvement for the closely cutover woodlands and forest planting for a large proportion of the open land is advocated as a general plan for the rehabilitation of this area.

The status of land acquisition on the Caswell County Land Use Project up to the fall of 1940 was as follows: Land purchased (10 tracts) 2,887.64 acres; options accepted (27 tracts) 5,504.87 acres; options not yet accepted (16 tracts) 2,664.82 acres. These lands lie on the watersheds of Country Line, Hyco, Pension, and South Country Line creeks.

It seems probable that the Federal Government will eventually offer this land area to the State on terms somewhat similar to those governing the administration of the Sandhills and Bladen Lakes Areas. When this comes about the Division of Forestry should be in a position to handle it. In the meantime this Department will continue to coöperate in the development of plans for the area and, so far as possible, in the initiation of a forestry program.

*National Forest Acquisition.* The fluctuating policy of Congress dealing with the purchase of land for National Forests fortunately took an upward turn for the year 1939-40 and increased appropriations resulted in some very important additions to the National Forests in this State. One of these was the acquisition of two tracts totaling 1,874 acres which include at least part of the summit of Roan Mountain. This was added to the Pisgah National Forest. An adjoining tract in Tennessee of around 1,000 acres will



aid in the effort to conserve this wonderfully scenic peak which the North Carolina Geological and Economic Survey urged the National Forest Reservation Commission to acquire some twenty-three years ago.

In 1939 the restriction on acquiring land in the Uwharrie purchase unit was removed and 6,621 acres were added to that forest.

The following figures are in accordance with the Forest Service Annual Statistical Report showing areas as of June 30, 1940:

Unit	Acquired Acres	Approved but not Acquired Acres	Total Approved for Purchase Acres
Cherokee	327	-----	327
Croatan	114,971	10,240	125,211
Nantahala	337,632	12,370	350,002
Pisgah	453,706	11,252	464,958
Uharie	22,976	6,637	29,613
Total	929,612	40,499	970,111

*The Forest Survey.* The Forest Survey, which began in field work in Piedmont North Carolina under the auspices of the Appalachian Forest Experiment Station, Asheville, in December 1936, but was forced to suspend after completing the field survey of the Coastal Plain Region in 1937, submitted its first report for comment in January 1940. This Forest Survey Release No. 4,\* "Forest Resources of the Southern Coastal Plain of North Carolina" was published in multilith form and given limited distribution April 1, 1940. The second report, Forest Survey Release No. 5, "Forest Resources of the Northern Coastal Plain of North Carolina," followed closely on June 15, 1940, thus making available the information for the whole of the Coastal Plain, or forty-eight per cent of the State's area. While not the first estimate of this State's timber resources, it is by far the most comprehensive and the most accurate ever made.

These and two other reports to be expected soon, namely, "Forest Resources of the Piedmont Region" and "Forest Resources of the Mountain Region," will supply the necessary basic information for a long-time forest policy and program for this State.

These Coastal Plain Reports bring out very clearly the following needs:

1. Increased funds for fire control.
2. The adoption by landowners of better cutting methods.
3. Better management looking to an increase in the growing stock.
4. Study of the pocosins and of species which may be suited for growing upon them.
5. More equitable methods of assessing forest property for taxation.

### FOREST LEGISLATION

The General Assembly of 1939 enacted some important and far-reaching forestry legislation which has already broadened and strengthened the conservation work in this State some of which is referred to elsewhere in this report. There is still needed legislation which would simplify the acquisition of land for public purposes, whether privately owned or forfeited

\* Previous releases covered the three survey districts of South Carolina.

for tax delinquency. There also seems to be a demand for a measure which would give landowners better protection against timber trespass and larceny of evergreens and other plants.

*Toll Roads in State Parks.* Ever since the first effort was made to secure coöperation of the CCC through the National Park Service in 1934 to develop Mount Mitchell State Park, it has been realized that the lease of the two miles of road from Stepps Gap to near the Park, to the Big Tom Wilson Mount Mitchell Motor Road, Inc., must be abrogated as such outside control of State property prevents its proper and public use. Accordingly, the General Assembly of 1939 enacted Chapter 127, prohibiting the private operation of a toll road or toll bridge upon lands belonging to the State which had been set apart or designated as a public park. Following the enactment of this law the president of the Big Tom Wilson Mount Mitchell Motor Road, Inc., was notified on April 11, 1939, to cease operation of this road under lease of 1925, which lease would have expired in 1940 but was renewable. The company responded on April 29 that operation of the road as a toll road had ceased and that the sum of \$8,000 was asked by way of compensation. The Department feeling that this was an exorbitant demand offered \$2,000 based upon figures admitted by the company for receipts for operation to date, namely \$3,125, taken in during the previous eleven years of operation. The company then asked for a jury of award which looked over the situation and in a hearing in Burnsville, August 22, 1939, gave the company the \$8,000 demanded. Both the State and the company appealed from this award and at the end of the biennium the matter was still in court. However, on the advice of the Attorney General's office, the State has finally decided to accept the judgment and on August 8, 1940, the Attorney General wrote the Department's legal representative in Burnsville in part as follows: "I have your letter of August 6 in which you advise that this case has been settled as authorized by me over the telephone on the basis of the plaintiff taking the judgment for the sum of \$8,000 in full settlement of all claims and demands in connection with the taking over of the property involved" (namely, the lease which might have run over a period of ten years from date). . . . "It is my understanding that at the next General Assembly the Department of Conservation and Development will make every effort to secure an appropriation to satisfy the judgment."

*The Forest Management Act.* This measure, Chapter 317, was prepared at the request of Senator Emmett Bellamy, Chairman of the Committee on Conservation and Development for the purpose of promoting reforestation and improving the management of privately-owned forest land, with special reference to meeting the growing demand for pulp-wood and other forest products. This measure, after having the appropriation of \$10,000 cut out and later a \$5,000 item inserted, was enacted through the intelligent and persistent efforts of Senators Bellamy and Council. It opens the way for a much-needed program for aiding landowners in the better management of their woodlands and the reëstablishment of profitable forest growth, providing not only for State inspection and advice, but demonstrations through the acquisition and operation of forest areas by the State in order to show improved methods of handling forests of the various types found in North Carolina.



*Soil Conservation Act Amended.* Upon the advice of the officials of the Soil Conservation Service, an amendment to the Soil Conservation Law of 1937, Chapter 393, was enacted. A provision in this law, whereby farmers in soil conservation districts were required to purchase forest tree seedlings from the State Forest Nursery as long as they were available, had been strongly criticized by the SCS and so had injuriously influenced the co-operation of the Department in the distribution of tree seedlings. The Act simply cancels the former restriction, allowing landowners to secure seedlings wherever they can be found.

*Machinery Act.* The "Machinery Act" of 1939, Chapter 310, contains a very important addition to all previous Machinery Acts. The Classification Amendment Commission which has been working for the past two years on such fundamental tax law changes was largely responsible for this amendment. It is contained in Section 500 and reads as follows:

"It is hereby declared to be the policy of this State so to use its system of real estate taxation as to encourage the conservation of natural resources and the beautification of homes and roadsides, and all tax assessors are hereby instructed to make no increase in the tax valuation of real estate as a result of the owner's enterprise in adopting any one or more of the following progressive policies:

1. Planting and care of lawns, shade trees, shrubs and flowers for non-commercial purposes.
2. Repainting buildings.
3. Terracing or other methods of soil conservation, to the extent that they preserve values already existing.
4. Protection of forests against fire.
5. Planting of forest trees on vacant land for reforestation purposes (for ten years after such planting)."

The first clause of this amendment occurring in a regular taxation measure is probably unique.

*State Park Appropriation.* This measure, Chapter 334, prepared and advocated by Senator Erskine Smith, provides an appropriation of \$35,000 for the "administration, operation, development and maintenance of State-owned Parks." It enables the Department to keep faith with the Federal Government through active coöperation, not only in the development of recreational facilities on these parks, but through the operation of these facilities after they have been made ready for public use. This is further referred to in the chapter on State Parks.

## FEDERAL RELATIONS

*Clark-McNary Law.* This successor of the old Weeks Law, as administered by the United States Forest Service has proved by far the most satisfactory plan of State-Federal coöperation of any dealing with our forest resources. The principle of this measure, enacted June 7, 1924, is to arrange co-operation on the basis of federal money contributions on a basis of not to exceed fifty per cent, the State carrying on the work under an agreement and a mutually satisfactory budget, the Federal Government furnishing expert advice and inspection.



Section 2 of this law provides for coöperation in forest fire control, while Section 4 provides coöperation in the growing and distribution of forest tree seedlings. The amount of financial help received under Section 4 has always been extremely limited, the allotment so far never having exceeded \$2,000 per annum; but the advice and prestige received through this arrangement seems to justify fully any additional bookkeeping and other office work.

Section 5 of the Clarke-McNary Law provides for a thorough and continuing study of Forest Taxation, so that those states which desire to revise their tax laws as affecting timber lands may receive the advice of trained and experienced men after careful study of local conditions. Under this section the Forest Taxation Inquiry was set up in the United States Forest Service which has furnished this State with much expert advice.

The Classification Amendment Commission, appointed under authority of the General Assembly of 1935 (Resolution 24), called on this Inquiry and with its assistance prepared and presented to the Finance Committee of the 1937 Legislature "*Amendments to the Tax Machinery Act, which, if adopted, would put into effect a classification of forest property for property tax purposes, providing for assessment of land at full value and assessment of timber or tree value at fifty per cent of true value.*" Unfortunately the Committee did not accept this amendment. It is hoped that it may be reconsidered in 1941.

*The Norris-Dorey Act.* Policies and procedures for the Farm Forestry Program of the Department of Agriculture under the Coöperative Farm Forestry Act issued May 9, 1939, and revised January 8, 1940, outline the objectives and proposed operation of the so-called Norris-Dorey Act. Under this act the Department of Agriculture will coöperate with State agencies, including the State forestry agency, the Agricultural College, the Extension Service, the State Agricultural Advisory Council (State Land Use Planning Committee), and the county and community agricultural planning committees.

The United States Forest Service notified the State Forester in 1939 that \$900 was available for coöperation with this Department for the fiscal year 1939-40; and later that \$1,600 was available for the year 1940-41. However, as the State Farm Forestry Committee had not prepared the requisite State Farm Forestry program, we were unable to qualify for this aid under the federal regulations. Undoubtedly this State will eventually qualify for this aid, either through modification of the demands of the act or through State compliance with the provisions as they are. For this reason the following guiding principles and objectives of the act prepared by the United States Department of Agriculture are given for information.

"1. The objective of the Coöperative Farm Forestry Act is the development of the farm woodland as a productive unit of the farm. To achieve this objective the Department has outlined a general research, education, and action program, including both reforestation and management of the existing stands.

2. The development of a farm woodland as a productive unit of a farm should be initiated and carried on as an integral part of farming, as a part of a farm plan, based on proper land use and economic principles.

3. Research, education, and action in farm forestry must be carried on as complementary phases of a single program.

4. A primary means of achieving the objective of the Coöperative Farm Forestry Act is the initiation and development of intensive projects to demonstrate the effects of woodland management on farm economy and land use. These projects will at the same time provide a proving ground for farm forestry methods.

5. The farm forestry program will also provide for the production of additional planting stock which will be available in coöperating States to farmers throughout the State, as well as for use on the intensive projects.

6. Whatever additional steps experience may show to be desirable, the program must adhere to the principles of intensive woodland management and proper land use for farms and areas as a whole.

7. Plans for application of the farm forestry program must be worked out, State by State, in coöperation with all interested agencies. The Department will coöperate with States, to the full extent of its resources, in carrying out the program developed in accordance with the foregoing principles.

The membership of the State Farm Forestry Committee is intended to be flexible so as to include all who may have a contribution to make. It will usually include the State Forester, Director of Extension, Extension Forester, Soil Conservation Service State Coördinator, Forest Service representative, State Bureau Agricultural Economics representative, and others.

There may be two kinds of intensive projects:

(a) The largest effort will be put into intensive farm forestry projects for which the Soil Conservation Service will have Departmental responsibility. The purpose of such projects is to demonstrate to farmers and agricultural workers the ways in which continuous proper management of the farm woodland will affect the farm economy and land use.

(b) In some States there will be intensive forestry projects to demonstrate correct forestry practices as a part of "forest farming." Here the dominant problems will be those of production, protection, marketing, and related forestry problems, in demonstrating the contribution which woodland management in a forest farming undertaking can make toward farm economy and proper land use. . . . When such projects are undertaken, the Forest Service will have Departmental responsibility for their administration."

*Soil Conservation Committee.* This committee, of which the State Forester is ex officio a member, has met from time to time chiefly to consider and approve the establishment of the Soil Conservation Districts provided for in Chapter 393, Public Laws of 1937. The boundaries of these districts have now been enlarged to include whole counties instead of watersheds. Nearly all the counties of the Piedmont Region and three on the edge of the Coastal Plain are now included in the twelve districts, six of which were listed in the previous biennial report (page 83). Since the limits of the first six have been very materially changed, the name, area, and location of all twelve districts as now constituted, are here given:



Soil Conservation Districts	Acreage	Location
Brown Creek.....	1,369,600	Anson, Montgomery, Richmond and Union counties.
Fishing Creek.....	704,640	Warren and Halifax counties.
Tri-Creek .....	1,002,880	Yadkin, Wilkes and Surry counties.
Tar River.....	1,194,040	Granville, Vance, Franklin and Nash Counties; part of Person County.
Broad River.....	1,375,040	Rutherford, Polk and Cleveland Counties; part of McDowell County.
Catawba .....	602,880	Catawba and Burke counties.
Dan River.....	1,166,280	Caswell, Rockingham and Stokes Counties; part of Person County.
Middle Yadkin.....	1,468,160	Cabarrus, Davidson, Davie, Rowan and Iredell Counties.
Neuse River.....	1,731,840	Wake, Durham, Orange, Johnston and Wilson Counties.
Haw River.....	757,120	Almanace and Guilford Counties.
Lower Catawba.....	805,760	Gaston, Lincoln and Mecklenburg Counties.
Upper Cape Fear.....	576,000	Lee and Moore Counties.

There are two or three counties which have not yet voted into these districts, but it will naturally be only a short while before this whole region is consolidated.

## EDUCATION

*School Forests.* It has always been the policy of the Forestry Division to seize every opportunity of carrying the "Gospel of Forestry" to the young people of the State when the costs could be held within the budget.

In compliance, therefore, with a request from Roy H. Thomas, State Supervisor of Vocational Agricultural Education, it was agreed to aid him, so far as time and personnel allowed, in the establishment of small forest areas in connection with vocational agricultural schools and to guide and aid the agricultural teachers in teaching some forestry to the agricultural students based upon these school forests. The branch of Forest Management with the aid of two district foresters, made preliminary visits to fifteen schools, some of them being visited as many as three times. While most of these schools had very little idea of the objective of this project and any large amount of enthusiasm was lacking, a definite beginning has been made which is destined to carry a long-time message of forest management to the leaders of our rural young people.

The need for emphasizing farm forestry in agricultural education and the plans for carrying out this project were placed before both the white and the Negro vocational agricultural teachers at their annual meetings in the early summer of 1940 by the State Forester. There are slightly more than 400 vocational agricultural schools in North Carolina, fifteen per cent of which are Negro schools. With fifty per cent of the average North Carolina farms now in woods and more being added yearly through the Soil Conservation Program, it seems essential that better management of the forest



crop be taught the young farmers of the State. There is no more effective way of teaching this than through the management of a properly selected school forest.

Only a very small part of the needed work can be done by the present personnel who all have quite as much as they can do, but with such a beginning, necessary funds for expansion of the program will no doubt be provided by the General Assembly either through this Department or some other.

### CIVILIAN CONSERVATION CORPS

On previous pages reference has been made to the activities and accomplishments of the Civilian Conservation Corps, especially in the work of forest fire control, the operation of the two forest nurseries and the development of our State Parks. The Department of Conservation and Development as the using agency deals with the National Park Service in the operation of the camps on the State Parks, the Superintendent of State Parks outlining and inspecting the work for the Forestry Division. There are four such camps at the end of the biennial period each working on one of the State Parks.

The State Forester is officially responsible for the "State and Private Camps" allotted to the State by the United States Forest Service. Frequent conference with the Assistant Foresters in charge of Forest Fire Control and Forest Management and with the Director of the CCC is necessary, so that the five camps and one or more side camps make their largest contribution to the conservation work with which the Department is entrusted.

Tribute must here be paid to the late Robert Fechner who guided the establishment and operation of the CCC through the country from the inception of this program in the spring of 1933 to the time of his lamented death in December 1939. Mr. Fechner visited one or more of our camps in North Carolina as he did many others throughout the country. He was keenly interested in all phases of the program but he always placed the safety and welfare of the young men of the camps above the work which they were doing. It was no wonder that the people have learned to look upon the CCC as primarily a training ground in good citizenship.

The following report for the biennium covering the activities of the camps allotted to this Department by the United States Forest Service for work on State and private land has been prepared by H. J. Pawek who, as State Director of the CCC for the past three years, has ably carried on this work.

### STATE AND PRIVATE CCC CAMPS

The activities of the Civilian Conservation Corps were continued through June 30, 1939 under the Act of the Seventy-fifth Congress (H. R. 6551). The CCC Extension Act (P. L. 326) approved by the President August 7, 1939 provided for only two changes over the previous Act; namely: (1) extension of the Corps to July 1, 1943, and (2) authorized an official seal for the Corps.

Under the President's Reorganization plan made effective July 1, 1939, the Civilian Conservation Corps was made a part of the Federal Security Agency administered by Paul V. McNutt.

The Civilian Conservation Corps suffered a great loss with the death of Director Robert Fechner who died December 31, 1939. He was succeeded by the assistant director, J. J. McIntee.

The field organization of the Corps has been changed only slightly during the biennium. The U. S. Forest Service in coöperation with the State Forest Service has direct control over State and Private Forest camps as in the past.

The central office force of the N. C. CCC State and Private Forest camps consists of the following personnel:

H. J. Pawek, Director.  
 B. W. Sipe, Purchasing—Fiscal.  
 A. M. Plyler, Engineer—Draftsman.  
 Elsie Dunn, Senior Stenographer.  
 Maria Barnes, Junior Stenographer.  
 Ethel Tingen, Junior Stenographer.

During the two year period the number of active camps has remained at five. Three camps were moved to new locations during the period as a result of having completed the work at their old location. Those camps moved to new locations are listed below showing new location and present designation:

Camp S-65, Jacksonville, moved to Bolton, Brunswick County on August 4, 1938 as Camp P-73.

Camp P-57, Morganton, moved to Buffalo Cove, Caldwell County, on October 1, 1939 as Camp P-75.

Camp P-67, Washington, moved to Maple Hill, Pender County, on October 1, 1939 as Camp P-74. Camp P-67 was manned by junior white enrollees who upon abandonment of that camp were transferred out of the State and the new Camp P-74 was manned by junior colored enrollees from another camp closed at the same time. The designation of Camp P-68, Elizabethtown, Bladen County, was changed to S-68 on April 1, 1940 due to the fact that the greater portion of the camp's work program is now found on State owned or State controlled lands.

Present camps are now located as follows:

Camp P-66, Brevard, Transylvania County (Junior White Company), R. E. Staton, Project Superintendent.

Camp S-68, Elizabethtown, Bladen County (Junior White Company), D. S. Stubbs, Project Superintendent.

Camp P-73, Bolton, Brunswick County (Junior Colored Company), D. A. Huffines, Project Superintendent.

Camp P-74, Maple Hill, Pender County (Junior Colored Company), C. M. Newcomb, Project Superintendent.

Camp P-75, Buffalo Cove, Caldwell County (Junior White Company), S. W. Hill, Project Superintendent.

In order to complete desirable work which could not otherwise be undertaken from the main camps due to distance of travel, numerous side camps have been established. Such camps are either housed in tents, house trailers, or semi-portable camp buildings. Since tents are unsatisfactory for use during the winter months, a set of house trailers were obtained. These accommodate nine enrollees and two foremen. They are used primarily for tower and house

projects on which only a small number of enrollees can be used to an advantage.

#### *Side Camps.*

There follows a list of side camps established during the past two years. Those marked with the asterisk are now in place:

Side Camp P-73—fifty enrollees—located at abandoned Camp S-65, Onslow County, from August 4, 1938 through October 28, 1938. This Side Camp was established to complete a project left incomplete when the main camp moved to its new location.

Side Camp P-67—nine enrollees—(house trailers) located near Scuppernon in Washington County. This side Camp was established August 25, 1939 for the purpose of erecting a lookout tower. The Side Camp was closed October 27, 1939.

Side Camp BS-2—thirty-five enrollees—located at abandoned Camp P-67 from November 6, 1939 through June 15, 1940. This side Camp was established for the purpose of completing certain work left incomplete when Camp P-67 was abandoned.

Side Camp P-68—seven enrollees—(house trailers) located near Stumpy Point, Dare County, from October 30, 1939 through December 20, 1939. This side Camp was established to erect a lookout tower.

\*Side Camp P-74—fifty enrollees—located at abandoned Camp F-15 Croatan National Forest. This Side Camp was established to complete work on the Croatan National Forest. Enrollees are furnished from Camp P-74 but supervised by the Federal Forest Service.

Side Camp P-68—eight enrollees—(house trailers) located at Williams Lake, Sampson County, from February 6, 1940 through May 5, 1940. This Side Camp was established for the purpose of constructing a towerman's residence and garage at the Williams Lake lookout tower.

\*Side Camp P-73—twenty-five enrollees—(tent Side Camp) located at Shallotte tower in Brunswick County to complete timber type mapping in an area that could not be reached from the main camp. The Side Camp was established June 15, 1940 and is expected to be closed August 15, 1940 or upon completion of the work.

\*Side Camp P-68—seventy-five enrollees—located at the Clayton State Forest Nursery in Johnston County. This Side Camp is housed in portable camp buildings supplied by the Army but maintained from N. C. CCC funds. This Side Camp was established in November 1933 with a strength of fifteen enrollees and has been gradually increased as a result of Nursery expansion. This Side Camp is engaged in all phases of Nursery operation and in addition has completed a number of Forest Fire Control and Nursery developments.

#### WORK ACCOMPLISHED

During the period July 1, 1938 through June 30, 1940 a total of 318,566 man days were expended by the five active camps and the side camps on Forest Fire Control and Nursery projects. A total of \$326,609.00 of Federal funds were expended for supervision, project materials, equipment operation, etc., exclusive of the cost of new trucks and heavy equipment furnished the camps by the Government, project materials furnished by private coöperators whose



properties are under organized forest fire protection, and State contributions in time and materials.

*Towers.* Eight lookout towers were erected during the period, as follows:

100 foot creosoted wood tower, inside stairway, located at Cameron Hill, Harnett County; erected August 19, 1938 from SCS Camp 18 as a coöperative project.

120 foot creosoted wood tower, inside stairway, located in Green Swamp, Brunswick County; erected October 11, 1938 from Camp P-73.

120 foot steel tower, inside stairway, located at Knightdale in Wake County; erected November 23, 1938, from Side Camp S-68.

40 foot creosoted wood tower observatory, 14 x 14 foot cab, located on Rich Mountain, Transylvania County; erected February 28, 1939 from Camp P-66.

120 foot creosoted wood tower with catwalk and inside stairway, located near Scuppernon in Washington County; erected October 27, 1940 from trailer side camp.

120 foot creosoted wood tower with catwalk and inside stairway, located near Stumpy Point in Dare County; erected December 21, 1939 from trailer side camp.

100 foot creosoted wood tower with catwalk and inside stairway, located near Stanhope in Nash County; erected February 15, 1940 from Camp SCS 30 as a coöperative project.

100 foot creosoted wood tower with catwalk and inside stairway, located near Apex in Wake County; erected July 12, 1940 from Side Camp S-68.

*Telephone lines.* 174.5 miles of telephone line were erected during the period as follows:

1.5 miles metallic circuit from Spivey Mountain to Highway No. 19 in Buncombe County; erected July 30, 1938 by Camp P-66.

2.8 miles metallic circuit from Warden Woolard to commercial line in Beaufort County; erected September 13, 1938 by Camp P-67.

3.8 miles metallic circuit from existing Bear Wallow line to commercial circuit in Henderson County; erected September 21, 1938 by Camp P-66.

0.2 miles metallic circuit from Deppe tower to commercial circuit in Onslow County; erected September 29, 1938 by Side Camp P-73.

15.0 miles metallic circuit from Green Swamp tower to existing line near Council in Brunswick and Columbus counties; erected November 13, 1938 by Camp P-73.

16.0 miles metallic circuit from Jones Lake Tower to existing line at Cumberland County line, Bladen County; erected February 17, 1939 by Camp P-68.

0.1 miles metallic circuit from Knightdale tower to commercial circuit in Wake County; erected March 13, 1939 by Side Camp P-68.

0.1 miles metallic circuit from Green Swamp line to Warden Lester Long, Columbus County; erected April 27, 1939 by Camp P-73.

4.5 miles metallic circuit from Huntsville Mountain to commercial line, McDowell County; erected May 17, 1939 by Camp P-57.

6.7 miles metallic circuit from Rich Mountain tower to Brevard, Transylvania County; erected June 28, 1939 by Camp P-66.

19.0 miles metallic circuit from Nakina tower to Chadbourn tower, Columbus County; erected September 23, 1939 by Camp P-73.

9.0 miles metallic circuit from Lagoon tower to Council's Mill Pond, Bladen and Columbus counties; erected October 6, 1939 by Camp P-68.

8.0 miles metallic circuit from Camp P-75 to Happy Valley, Caldwell County; erected January 20, 1940 by Camp P-75.

8.0 miles metallic circuit from Camp P-74 to Bannerman line, Pender County; erected February 1, 1940 by Camp P-74.

10.0 miles metallic circuit from Warden Powell's to commercial circuit, Transylvania County; erected February 27, 1940, by Camp P-66.

16.0 miles metallic circuit from White Oak to East Robeson tower, Bladen and Robeson counties; erected March 25, 1940 by Camp P-68.

1.0 miles metallic circuit from White Oak-East Robeson line to Warden Dunbar in Bladen County; erected March 14, 1940 by Camp P-68.

18.0 miles metallic circuit from Riegel tower to Shallotte tower, Brunswick County; erected April 17, 1940 by Camp P-73.

10.1 miles metallic circuit from Camp P-74 to Chinquapin tower, Pender and Duplin counties; erected May 28, 1940 by Camp P-74.

5.7 miles metallic circuit from Hendersonville to Crab Creek State Forest Nursery, Henderson County; erected June 28, 1940 by Camp P-66.

19.0 miles metallic circuit from Exum to Nakina in Brunswick and Columbus counties; erected July 16, 1940 by Camp P-73.

#### *Buildings erected.*

Eight towermen's dwellings were erected during the period, as follows:

31' x 16' 2-room frame house at Reddit tower in Beaufort County; completed August 15, 1938 by Camp P-67.

31' x 25', 4-room frame house at Clinton tower in Sampson County; completed September 15, 1938 by Camp P-68.

30' x 36', 4-room frame house at Riegel tower, Brunswick County; completed January 19, 1939 by Camp P-73.

31' x 16', 2-room frame house at East Lake tower in Dare County; completed June 15, 1939 by Camp BF-2 as a coöperative project.

31' x 25', 4-room frame house at Newkirk tower in Sampson County; completed July 28, 1939 by Camp P-68.

31' x 25', 4-room frame house at Shallotte tower in Brunswick County; completed November 3, 1939 by Camp P-73.

31' x 25', 4-room frame house at Knightdale tower in Wake County; completed February 23, 1940 by Side Camp P-68.

31' x 25', 4-room frame house at Williams Lake tower in Sampson County; completed April 29, 1940 by Camp S-68.

In addition to the above, the following buildings were completed during the period:

30' x 36', 4-room frame residence was erected at Crab Creek State Forest Nursery, Henderson County; completed September 9, 1939 by Camp P-66.

30' x 60' frame district warehouse, New Bern; completed March 23, 1939 by Camp P-67.

32' x 60' equipment depot at Crab Creek State Forest Nursery, Henderson County; completed April 4, 1939 by Camp P-66.

Three-room frame office at Clayton State Forest Nursery, Johnston County; completed July 12, 1940 by Side Camp S-68.

#### *Other Structures.*

A number of miscellaneous structures were completed during the period and these are listed as follows:

16' x 18' combination garage and tool houses were constructed at the Reddit, Clinton, Riegal, East Lake, Knightdale, Williams Lake and Newkirk towers and at the Clayton State Forest Nursery.

Fencing was erected at the Reddit, Hassell, Foreman, East Lake, Greenville, Riegal, Newkirk, Jones Lakes, Clinton, Shallotte, Knightdale and Williams Lake tower sites. Fence was also erected at the Crab Creek State Forest Nursery.

Privies were erected at the Deppe, Reddit, Greenville, Clinton, Riegal, Newkirk, Scuppernong, East Lake, Stumpy Point, Glover, Williams Lake and Apex towers.

Wells were provided at the Riegal, Newkirk, Reddit, Scuppernong, Stumpy Point and Glover towers.

Tower map tables and stands were constructed for the Scuppernong, Stumpy Point, Glover, Apex, Knightdale, Clinton, Williams Lake, Deppe, Cameron Hill, and Riegal towers.

Pump houses were constructed at the Crab Creek and Clayton State Forest Nurseries.

#### *Other Activities.*

A total of 6,360 man days were expended in suppressing forest fires during the two year period. This is a decrease of 1,372 man days under the previous two year period although the past fire season was one of the most serious in years, particularly in the Western Counties. This reduction can be accounted for in part by the fact that the regular Fire Control Organization called less frequently on the CCC for assistance and in part to the intensive training given enrollees in forest fire fighting.

During the period 32,159 man days were devoted to the mapping of forest lands in the coastal section of the State. A total of 21 quadrangles, each covering 38,000 acres, have been completed to date and are available for distribution from the State Forester's office.

A total of 147.6 miles of truck trail were completed through inaccessible forest lands. These trails were constructed to a high standard in order to reduce maintenance costs. Bridges were built to stand a ten-ton loading and all culverts were of the concrete or metal type. Spot surfacing of crushed rock was applied to trails constructed in the mountains and sand or clay surfacing to trails constructed in the coastal section.

A total of 25,049 man days were used in the Crab Creek and Clayton State Forest Nurseries for the purpose of growing forest tree seedlings for distribution to farmers and other forest land owners. The 25,049 man days does not include labor used for Nursery development projects or seed collection.

*Summary.* There follows in detail a summary of accomplishments by camps for the two year period. Work completed by Side Camps is included with that of the main camp from which the men were furnished:



Projects	Unit	P-57	S-65	P-66	P-67	S-68	P-73	P-74	P-75	Total
Barns.....	No.							1		1
Bridges.....	No.	6	2	5	1		5	2		21
Cabins, Overnight.....	No.					1				1
Combination Buildings.....	No.				4					4
Dwelling, Towermans.....	No.				2	4	2			8
Dwelling, Other.....	No.			1						1
Garages.....	No.				2	4	2			8
Latrines and Toilets.....	No.				5	4	3			12
Lookout Towers*.....	No.			1	2	2	1			6
Warehouse and Equipment										
Depot.....	No.			1	1					2
Other Buildings.....	No.	2		1		2				5
Fences.....	Rods			431	420	341	165			1,357
Sewage and Waste Disposal										
Systems.....	No.			2						2
Telephone Lines Constructed.....	Miles	4.5		27.7	2.8	42.1	71.3	18.1	8.0	174.5
Telephone Line Maintained.....	Miles					.4				0.4
Water Supply Systems, Misc.....	No.			3		1	2	2		8
Other Structural Improvements.....	No.			1	1	9				11
Truck Trails Constructed.....	Miles	27.2	9.0	24.2	28.6	18.6	29.3	2.2	8.5	147.6
Truck Trails Maintained.....	Miles	36.0		56.1				76.0		168.1
Foot Trails Constructed.....	Miles			.7						0.7
Bank Sloping.....	Sq. Yd.			11,770						11,770
Check Dams, Temporary.....	No.			13						13
Seeding and Sodding.....	Sq. Yd.			11,473						11,473
Clearing and Cleaning Channels.....	Sq. Yd.			350						350
Pipe and Tile Lines.....	LF.			500						500
Planting Forest Trees.....	Acres			17		309				326
Forest Stand Improvement.....	Acres	235				55.5				290.5
Nurseries.....	M. days			4,943		20,106				25,049
Tree Seed Collection—										
Conifers.....	Bu.	120		350	200	1,957	1,431			4,058
Tree Seed Collection—										
Hardwoods.....	Lbs.			2,047	1,350	28	3,000			6,425
Fighting Forest Fires.....	M. days	692	11	2,396	198	310	681	716	1,354	6,360
Fire Hazard Reduction—										
Roadside.....	Miles		6.5							6.5
Fire Hazard Reduction—										
Other.....	Acres		2.5				4			6.5
Fire Pre-suppression.....	M. days	132	43	397	394	1,042	1,427	1,213	336	4,984
Tree Insect Pest Control.....	Acres					.3				0.3
General Clean-Up.....	Acres	1		3		5	12		4	25
Landscaping.....	Acres			1		10				11
Parking Areas.....	Sq. Yd.					491				491
Public Camp Grounds Development.....	Acres				8		1			9
Public Camp Ground Maintenance.....	Acres							20		20
Razing Undesirable Structures.....	M. days					149	154			303
Emergency Work.....	M. days	11					86			97
Reconnaissance and Investigation.....	M. days		11							11
Marking Boundaries.....	M. days		17			491		52		560

Projects	Unit	P-57	S-65	P-66	P-67	S-68	P-73	P-74	P-75	Total
Preparation and Transporting of Materials.....	M. days	5	-----	336	54	3,072	9	-----	47	3,523
Experimental Plots.....	No.	-----	-----	-----	14	-----	-----	-----	-----	14
Surveys.....	M. days	-----	183	-----	9,566	14,381	6,170	1,859	-----	32,159
Equipment Construction.....	M. days	-----	-----	950	-----	280	-----	-----	-----	151
Warehousing.....	M. days	-----	-----	-----	-----	151	-----	-----	-----	151
Technical Service Camp Buildings.....	No.	-----	-----	-----	-----	1	-----	-----	1	2
Picnic Shelters.....	M. days	-----	-----	-----	-----	-----	-----	1,171	-----	1,171
Incinerators.....	No.	-----	-----	-----	-----	-----	-----	2	-----	2
Picnic Tables—Seats.....	No.	-----	-----	-----	-----	-----	-----	12	-----	12
TOTAL—ALL PROJECTS.....	M. days	43,670	2,481	47,926	41,594	71,379	65,607	26,076	19,833	318,568

\* Two additional towers were purchased by this unit and erected under its supervision, but by enrollees from the Soil Conservation Service.

*Review.* During the past seven years during which the CCC has been in operation in this State there have been completed a total of 1,434.6 miles of truck trail; 978 bridges; 841.7 miles of telephone line; 60 lookout towers; 29 trailer sheds; 19 towerman's residences; 14 garages; 9 tower cabins; 2 warehouses and numerous other improvements. These have all been turned over to the State Department of Conservation and Development and are now a part of the State Forest Fire Control system. In the completion of such work the Federal Government has expended a total of 1,578,750 man days and \$1,793,085.33 of funds to cover supervision, purchase of materials and operation of equipment.

Although maintenance of a part of these improvements has been provided for from regular State Forest fire control funds, from direct appropriations by a few counties for truck trails and through absorption of a small percentage of the truck trails into the State system of public roads, the State Legislature has made no direct appropriation for maintenance of truck trails. As a result the investment in such improvements, made for the purpose of protecting the valuable timber resources of this State, is rapidly depreciating.

During the biennium this Unit has acquired special equipment which has made possible the construction of projects which previously could not be undertaken. A dragline attachment was obtained for the three-eighth yard gas shovel. This equipment is indispensable in constructing truck trails through swampy sections or through pocosins. Through a coöperative agreement, the Riegel Paper Company is furnishing a three-fourth yard dragline for use at Camp P-73, Bolton. A number of truck trails which could not otherwise have been undertaken have already been completed with this machine. Recently a pile driver was manufactured by the Asheville Central Repair Shop for this unit. Sturdy and more permanent bridge foundations can now be built over larger streams. The house trailers constructed for this unit have made possible the erection of a number of towers far removed from any CCC camp.

Considerable stress has been placed on training of enrollees both "off-the-job" and "on-the-job" during the past two years and particularly during the

past several months. A large number of the enrollees have been trained in the various stages of road construction, in tractor, compressor and grader operation, telephone line construction, truck driving, mapping and use of explosives and many other jobs which will not only fit them for useful occupations after they leave the camps but provide them with the basic training so important in national defense.



## DIVISION OF GAME AND INLAND FISHERIES

The activities of this division are directed to the administration of the wildlife resources of North Carolina in order to maintain an adequate supply for the present day requirements and to perpetuate the various species of game and fish, and its duties can be grouped as follows:

1. Protection of the seed stock and control of the harvest.
2. Propagation, either natural or artificial.
3. Research.
4. Education of the people to the economic, recreation and aesthetic value of wildlife.

Wildlife management about which so much is heard today is the hitching and teaming of these four activities for the effective handling of wildlife conservation work. The sportsmen of tomorrow will be vitally affected by the way today's wildlife problems are handled; hence, this division is engaged in building a program well balanced in all of the main features of good conservation and the hunters and fishermen of the State individually and through their local organizations are beginning to realize their own responsibilities and do their bit towards the betterment of wildlife conditions in the State.

The administration of the game and fish problems of the State is financed entirely from revenues received from the sale of hunting and fishing licenses. Consequently, the purchaser of a license to hunt and fish is the man who is primarily concerned in the progress of the program and its needs from time to time.

The following report of the activities of the game and inland fisheries division will be of interest to the public generally and will give to the hunters and fishermen in detail the receipts and expenditures of license money. The statement of receipts and disbursements is condensed under the budget section in the front part of this report.

### GAME

There has been a further improvement during this biennium in the observance of game and fish laws. Prosecutions have declined appreciably and the type of persons apprehended violating the game and fish laws now is usually that type which deliberately sets out to violate the law. Citizens of the State are rapidly coming to the realization of the enormous value of their wildlife resources and this is especially true of the younger generation.

The farm-game program which was launched by this department in 1937 is becoming more popular with the landowners as the work develops. In this program the State is divided into six districts each in charge of a field biologist whose duty it is to increase the interest of the farmer and landowner in improving food and cover conditions for game on their lands whether the lands are now being used for agricultural purposes or whether they are idle. The success of this program calls for an expansion of the work as rapidly as revenues will permit. The methods and policies being used in the operation of the farm-game program have proven sound and adequate and the results obtained have drawn the attention of some of the other States which are follow-

ing this program almost to the letter. Virginia and Texas are the last to adopt a program planned after this one.

Under the farm-game program there is in operation at this time 790 management areas comprising a total of 308,488 acres averaging slightly less than 400 acres to the area.

The coöperative game management areas on U. S. Forest Lands have been expanded during this biennium, thus furnishing additional controlled hunting and fishing on the U. S. Forest areas. There is listed below the total acreage included in each management area on the two Federal Forests in western North Carolina:

<i>Areas</i>	<i>Location</i>	<i>Acreage</i>
<i>Nantahala Areas</i>		
Santeetlah Area—Graham County, W. of Robbinsville, N. C.....		37,168
Fires Creek Area—Clay County, N. of Hayesville, N. C.....		13,720
Standing Indian Area—Macon County, S. of Franklin, N. C.....		28,432
Wayah Bald Area—Macon County, W. of Franklin, N. C.....		11,226
Cliffside Lake—Macon County, W. of Highlands, N. C.....		8
<i>Pisgah Areas</i>		
Sherwood Forest Area—Haywood County, S. of Waynesville, N. C.....		30,258
Mt. Mitchell Area—Yancey and McDowell counties, W. of Marion, N. C.....		26,625
Daniel Boone Area—Avery, Burke, and Caldwell counties, N.W. of Morganton, N. C.....		45,543
Grand Total.....		192,980

Additional refuges for big game have been established on private lands under lease and some of these areas are in the process of being signed up at this time.

The Sandhills Land Use Area in Richmond, Scotland and Moore counties near Hoffman is being developed as a game refuge with Pittman-Robertson funds. All lakes are being built on this area with WPA labor, the purpose being to impound an additional 1,500 acres of water as wintering grounds for ducks and also to be used for public fishing. Five of these lakes have already been completed and stocked with fish and will furnish public fishing beginning with the season 1942. This land use area consists of 64,000 acres originally purchased by the Resettlement Administration and turned over to this Department for administration as a game and forest area under a long term lease.

Holly Shelter Pocosin in Pender County is likewise being developed as a refuge with the aid of Pittman-Robertson funds and WPA. This block of land was obtained by deed from the North Carolina School Board and consists of approximately 70,000 acres and is especially well adapted for deer and fur bearing animals, with some few bear and wild turkey. These lands have suffered severely in the past from uncontrolled fires in dry years. The main purpose, therefore, of the development is to establish a system of interior roads and fire lanes and a boundary fire break so as to make the area accessible for fire fighting, thus increasing the possibility of controlling wild fires during the fire seasons.

The Bladen Lakes Area in Bladen County is another of these Resettlement purchases consisting of about 40,000 acres leased to the State as a forest



area and operated by the Forestry Division as such. The Game and Inland Fisheries Division furnishes the protection for game and fish on this area.

The propagation of quail and turkeys is confined to the operation of the Fayetteville Game Farm and the Pine Forest Game Farm at Hoffman, which is located on the Sandhills Land Use Area and which was constructed and equipped almost entirely by the Federal agencies before being turned over to this department to be operated by the State. These two small hatching units will, when completed, have a capacity of about 1,500 wild turkeys and 2,500 quail each per year. These pen raised birds are used in restocking depleted refuge areas and farm-game lands which are closed to hunting for a period of time. In this way the liberated game has a reasonably good chance of escaping the hunter's gun long enough to produce an increase.

In the field of research the department has during this biennium been able to launch some studies which are badly needed and which should be of great benefit in the future. The principal studies under way at the present time are the fur-bearers project being conducted by Joe C. Rabb who is especially trained in this type of work. The object of this study is primarily to educate the trapper in how and when to take furs and how best to prepare the pelts for market. The fur-bearing animals of North Carolina have an important value as natural resources but very little has been done in the past towards educating the trapper and the fur buyer.

Another important research study is that now being conducted by Biologist J. W. Kistler and consists of a detailed study of the food habits, nesting habits, diseases and effect of predators on quail in North Carolina. This is a study which has been running for nearly two years and is designed to cover a total period of about five years and includes also a study of mourning doves in North Carolina.

The third and most recent study is that now being conducted by Seth Gordon, Jr., and is a survey of white tail deer in North Carolina. This deer is our most valuable big game animal and the last census indicates that we do not have more than 60,000 head of deer in the entire State, the largest concentration of which is on the Fort Bragg Military Reservation and consists of approximately 6,000 head. The best deer range in the State is located within the 23 western counties where there are in all not over 8,000 deer, although the area is estimated to have a carrying capacity of around 100,000 head without damage to the forest or cover. The purpose of this survey is to find the facts concerning deer throughout the State with a view of developing eventually more suitable regulations and perhaps bringing about some re-distribution from present well stocked areas so as to reestablish deer in suitable areas where they are not to be found at the present time.

The protection of various species of wild game is the most important function of this division and in this line of work we have during the past biennium striven to improve the field organization and bring about better observance of the game laws. In our efforts along this line the department has received good cooperation from the magistrates, recorders courts and the higher courts as well; and sportsmen are also showing an increased interest in the enforcement of the laws and are rendering valuable aid in that direction.



HUNTING LICENSE RECEIPTS, 1938-39  
GUIDES, 421; STATE TRAPPERS, 696; COUNTY TRAPPERS, 1,787

County	Non-Resident	State	County	Combination	Trapper	Receipts
Alamance.....	1	1,524	1,061	270	15	\$ 4,973.00
Alexander.....		153	322	53	5	800.00
Alleghany.....		60	343	74	18	722.00
Anson.....		129	1,300	81	33	1,871.00
Ashe.....		32	570	8	6	670.00
Avery.....	12	105	432	68	12	1,050.00
Beaufort.....	81	971	1,255	120	52	4,887.00
Bertie.....	16	288	1,606	231	63	3,252.00
Bladen.....	18	463	1,181	207		2,998.00
Brunswick.....	13	177	889	28	8	1,538.00
Buncombe.....	48	1,802	2,494	840	21	9,387.00
Burke.....		417	650	378	5	2,629.00
Cabarrus.....		1,420	969	445	9	5,168.00
Caldwell.....		372	1,051	276	15	2,657.00
Camden, See Pasquotank.....						
Carteret.....	48	292	627	28	30	2,076.00
Caswell.....	17	272	762	14	27	1,660.00
Catawba.....		1,070	890	274	11	3,880.00
Chatham.....	92	390	801	49	29	3,171.00
Cherokee.....	2	320	472	133		1,541.00
Chowan.....	7	169	249	23	29	840.00
Clay.....		20	95	24		207.00
Cleveland.....		616	836	251	12	2,850.00
Columbus.....	42	567	1,745	317		4,460.00
Craven.....	21	873	1,463	149	3	3,980.00
Cumberland.....	10	792	904	199	16	3,267.00
Currituck.....	387	170	571	22	129	7,044.00
Dare.....	80	136	401	5	49	1,989.00
Davidson.....	28	1,077	1,480	98	17	4,387.00
Davie.....	6	300	597	31	10	1,403.00
Duplin.....	9	812	1,416	267	48	4,075.00
Durham.....	5	1,689	419	632	18	5,812.00
Edgecombe.....	14	769	1,326	511	87	4,800.00
Forsyth.....	3	3,006	1,337	513	24	9,002.00
Franklin.....	4	313	1,008	100	45	2,092.00
Gaston.....	3	1,451	736	151	12	4,164.00
Gates.....	43	147	660	36	48	1,813.00
Graham.....	37	70	521	21		1,279.00
Granville.....	3	341	1,079	101	27	2,174.00
Greene.....		190	456	256	2	1,610.00
Guilford.....	34	2,039	1,288	555	19	9,388.00
Halifax.....	23	741	1,716	292	46	4,538.00
Harnett.....	13	735	815	410	26	3,779.00
Haywood.....	2	464	1,290	218	6	2,914.00
Henderson.....	86	354	929	164	12	3,449.00
Hertford.....	37	181	719	127	37	2,096.00
Hoke.....	9	195	588	61		1,296.00
Hyde.....	234	183	709	48	71	4,874.00
Iredell.....		796	1,971	190	22	4,190.00
Jackson.....		124	325	149	2	1,024.00
Johnston.....	3	463	2,156	306	62	4,191.00
Jones.....	9	306	600	47	10	1,510.00
Lee.....	1	451	451	142	22	1,851.00
Lenoir.....	12	645	783	618	50	4,213.00
Lincoln.....	1	181	150	109	4	866.00
McDowell.....		380	613	167	4	1,884.00
Macon.....		62	597	60	6	913.00

## HUNTING LICENSE RECEIPTS, 1938-39—Continued

County	Non-Resident	State	County	Combination	Trapper	Receipts
Madison.....	24	76	283	21	5	\$ 868.00
Martin.....	28	288	960	287	79	3,002.00
Mecklenburg.....	5	1,870	1,456	471	16	6,721.00
Mitchell.....	6	114	386	75	8	946.00
Montgomery.....	3	384	719	109	10	1,884.00
Moore.....	48	665	426	150	3	2,933.00
Nash.....	-----	772	1,575	293	80	4,191.00
New Hanover.....	4	965	259	203	8	2,877.00
Northampton.....	6	98	1,416	74	44	2,012.00
Onslow.....	35	352	888	66	44	2,405.00
Orange.....	1	368	681	102	16	1,777.00
Pamlico.....	21	202	474	10	20	1,265.00
Pasquotank-Camden.....	54	498	477	49	116	2,710.00
Pender.....	9	398	1,170	70	1	2,314.00
Perquimans.....	6	79	304	7	22	621.00
Person.....	5	260	681	31	20	1,419.00
Pitt.....	4	969	1,812	459	121	5,458.00
Polk.....	1	108	541	75	3	1,004.00
Randolph.....	45	664	423	157	8	2,915.00
Richmond.....	4	676	1,027	211	42	3,166.00
Robeson.....	24	746	1,495	355	-----	4,412.00
Rockingham.....	2	849	1,412	110	21	3,525.00
Rowan.....	2	1,671	1,357	222	19	5,438.00
Rutherford.....	-----	387	1,399	257	14	2,974.00
Sampson.....	8	585	1,854	170	5	3,669.00
Scotland.....	2	206	621	63	18	1,289.00
Stanly.....	1	708	444	207	4	2,505.00
Stokes.....	-----	212	606	13	10	1,094.00
Surry.....	-----	416	793	45	17	1,797.00
Swain.....	4	109	490	45	4	911.00
Transylvania.....	60	106	289	39	-----	1,518.00
Tyrrell.....	20	136	217	9	57	935.00
Union.....	3	243	1,066	63	21	1,835.00
Vance.....	4	455	1,084	122	27	2,488.00
Wake.....	8	1,684	2,149	630	61	7,687.00
Warren.....	9	238	1,279	49	39	2,121.00
Washington.....	22	300	507	49	42	1,690.00
Watauga.....	-----	68	203	57	-----	510.00
Wayne.....	4	520	1,250	369	74	3,625.00
Wilkes.....	-----	292	857	70	26	1,708.00
Wilson.....	4	635	1,072	381	8	3,569.00
Yadkin.....	-----	264	334	12	11	929.00
Yancey.....	9	148	306	65	-----	932.00
Miscellaneous Sales.....	78	90	13	57	5	1,549.00
TOTAL.....	2,087	53,839	87,729	17,326	2,483	\$284,352.00
Mattamuskeett Lake.....	-----	-----	-----	-----	-----	3,927.00
Western Refuges.....	-----	-----	-----	-----	-----	107.00
Fur Dealers' Licenses and Permits.....	-----	-----	-----	-----	-----	3,230.00
Guides' Licenses, Bush Blind Licenses, Shooting Point Licenses.....	-----	-----	-----	-----	-----	2,573.00
-----	-----	-----	-----	-----	-----	\$294,189.00
Less Proportionate Part of Combination Licenses Transferred to Inland Fisheries.....	-----	-----	-----	-----	-----	17,267.00
GRAND TOTAL.....	-----	-----	-----	-----	-----	\$276,922.00

**HUNTING LICENSE RECEIPTS, 1939-40**  
GUIDES, 426; STATE TRAPPERS, 605; COUNTY TRAPPERS, 1,610

County	Non-Resident	State	County	Combination	Trapper	Receipts
Alamance.....	2	1,480	820	260	22	\$ 4,650.00
Alexander.....	2	158	317	46	5	814.00
Alleghany.....		55	243	66	17	586.00
Anson.....	1	143	1,098	73	30	1,686.00
Ashe.....		26	354	8	4	438.00
Avery.....	8	118	302	53	13	845.00
Beaufort.....	65	1,044	1,169	109	50	4,672.00
Bertie.....	17	259	1,660	195	65	3,148.00
Bladen.....	15	374	1,159	184		2,684.00
Brunswick.....	7	188	920	30	4	1,500.00
Buncombe.....	15	1,590	2,019	785	24	7,834.00
Burke.....		481	710	454	9	3,055.00
Cabarrus.....		1,304	715	437	11	4,662.00
Caldwell.....		411	817	282	12	2,512.00
Camden, See Pasquotank.....						
Carteret.....	77	309	653	24	18	2,534.00
Caswell.....	12	214	574	14	16	1,259.00
Catawba.....		1,082	818	460	15	4,401.00
Chatham.....	89	433	746	66	23	3,199.00
Cherokee.....		310	538	143		1,587.00
Chowan.....	5	181	244	23	39	854.00
Clay.....		17	142	22		242.00
Cleveland.....		576	690	275	9	2,690.00
Columbus.....	61	606	1,657	294		4,666.00
Craven.....	28	780	1,424	127	3	3,794.00
Cumberland.....	10	795	969	249	18	3,492.00
Currituck.....	584	210	587	28	141	10,137.00
Dare.....	73	157	377	3	71	1,940.00
Davidson.....	17	1,042	1,266	99	16	3,943.00
Davie.....		318	551	21	12	1,278.00
Duplin.....	7	749	1,304	226		3,585.00
Durham.....	2	1,762	413	657	14	5,974.00
Edgecombe.....	26	717	1,142	455	70	4,491.00
Forsyth.....	3	2,917	1,117	523	28	8,639.00
Franklin.....	1	246	790	74	24	1,571.00
Gaston.....	1	1,381	579	200	12	3,985.00
Gates.....	46	134	578	43	51	1,780.00
Graham.....	32	46	472	20		1,104.00
Granville.....	6	292	977	97	22	1,996.00
Greene.....	2	182	382	200	2	1,382.00
Guilford.....	39	2,992	926	617	18	9,388.00
Halifax.....	30	680	1,601	294	48	4,414.00
Harnett.....	9	733	807	434	13	3,740.00
Haywood.....	3	418	908	221	5	2,463.00
Henderson.....	6	295	825	185	20	2,109.00
Hertford.....	47	206	619	97	31	2,096.00
Hoke.....	6	203	634	49		1,277.00
Hyde.....	304	177	715	28	67	5,850.00
Iredell.....		798	1,888	191	17	4,096.00
Jackson.....		139	294	115	3	923.00
Johnston.....	1	468	2,140	315	1	4,039.00
Jones.....	1	243	547	19	3	1,111.00
Lee.....	3	441	392	119	13	1,710.00
Lenoir.....	1	598	711	548	51	3,674.00
Lincoln.....		195	130	103	9	856.00
McDowell.....	1	441	635	192	4	2,116.00
Macon.....		42	564	59	7	839.00



## HUNTING LICENSE RECEIPTS, 1939-40—Continued

County	Non-Resident	State	County	Combination	Trapper	Receipts
Madison.....	2	84	280	25	4	\$ 561.00
Martin.....	15	376	1,096	288	82	3,123.00
Mecklenburg.....	7	2,141	1,505	527	19	7,517.00
Mitchell.....	1	118	345	57	6	779.00
Montgomery.....	4	410	543	87	11	1,711.00
Moore.....	52	694	423	120	6	2,965.00
Nash.....	3	700	1,472	290	78	3,972.00
New Hanover.....	2	1,032	244	221	13	3,033.00
Northampton.....	5	116	961	74	41	1,572.00
Onslow.....	14	303	813	74	27	1,906.00
Orange.....	-----	416	557	101	8	1,712.00
Pamlico.....	32	198	397	7	32	1,361.00
Pasquotank-Camden.....	55	541	440	69	78	2,751.00
Pender.....	8	333	1,121	81	1	2,153.00
Perquimans.....	6	70	248	4	15	521.00
Person.....	2	242	626	42	23	1,320.00
Pitt.....	8	895	1,870	486	135	5,539.00
Polk.....	3	110	661	102	-----	1,232.00
Randolph.....	50	868	604	191	13	3,690.00
Richmond.....	1	668	891	234	28	3,004.00
Robeson.....	26	921	1,911	355	-----	5,208.00
Rockingham.....	1	854	1,003	123	18	3,141.00
Rowan.....	-----	1,597	1,277	241	22	5,251.00
Rutherford.....	1	404	1,276	254	20	2,908.00
Sampson.....	13	551	1,828	154	4	3,599.00
Scotland.....	10	214	652	63	20	1,459.00
Stanly.....	-----	689	340	169	12	2,257.00
Stokes.....	1	153	429	18	8	821.00
Surry.....	2	456	773	57	28	1,945.00
Swain.....	4	89	377	43	1	746.00
Transylvania.....	9	81	321	41	-----	741.00
Tyrrell.....	11	118	214	9	45	745.00
Union.....	1	344	1,327	86	24	2,340.00
Vance.....	2	477	862	96	26	2,196.00
Wake.....	16	1,709	2,105	633	59	7,808.00
Warren.....	8	205	1,068	37	33	1,782.00
Washington.....	20	285	415	50	38	1,526.00
Watauga.....	-----	55	184	50	-----	444.00
Wayne.....	4	499	1,079	362	1	3,225.00
Wilkes.....	1	306	835	88	31	1,792.00
Wilson.....	3	591	950	359	5	3,269.00
Yadkin.....	2	245	263	14	15	860.00
Yancey.....	7	191	221	74	-----	930.00
Miscellaneous Sales.....	40	87	6	47	7	983.00
TOTAL.....	2,117	53,592	80,442	17,414	2,217	\$276,708.00
Mattamuskeet Lake.....	-----	-----	-----	-----	-----	\$ 3,826.50
Western Refuges.....	-----	-----	-----	-----	-----	180.00
Fur Dealers' Licenses and Permits.....	-----	-----	-----	-----	-----	3,020.00
Guides' Licenses, Bush Blinds, Shooting Point Licenses.....	-----	-----	-----	-----	-----	2,804.50
Less Proportionate Part of Combination License Transferred to Inland Fisheries.....	-----	-----	-----	-----	-----	\$286,539.00
GRAND TOTAL.....	-----	-----	-----	-----	-----	26,122.50
GRAND TOTAL.....	-----	-----	-----	-----	-----	\$260,416.50

## LICENSES TO PROPAGATE GAME BIRDS IN CAPTIVITY

July 1, 1938, to June 30, 1939

Dr. Frank C. Smith, Charlotte  
 Birkbeck C. Crabbe, Glory Hill Farm, Magnolia  
 F. B. Cooper, Nashville  
 W. O. Rawls, Goldsboro  
 L. A. Trueblood, Washington  
 W. L. Hepler, Jr., Greensboro  
 Southland Game Farm, Morehead City  
 C. S. Grant, Mocksville  
 R. S. Gidney, Shelby  
 E. E. Herring, Rocky Mount  
 Greensboro Recreational Park Zoo, Greensboro  
 L. E. Norfleet, Tarboro  
 Paul R. Jones, Thomasville  
 Jethro Almond, Albemarle  
 John J. Larew, Mocksville  
 A. G. Gordon, Winston-Salem  
 Montvale Game Farm, Oakland  
 Mrs. R. A. Ramseur, Lincolnton  
 David B. Crawford, Charlotte  
 C. B. Williams, Fayetteville  
 Dixie Game Farm, Salisbury  
 Mrs. J. P. McDowell, Tarboro  
 Long Creek Lodge, Devotion  
 Frank W. Fuller, Salisbury  
 R. H. George, Wilmington  
 J. E. Owens, Grandy  
 W. E. Stout, Wallace  
 J. W. Davis, Mocksville  
 Jos. S. Mann, Swan Quarter  
 J. S. McInnis, Raleigh  
 Dr. Z. F. Long, Rockingham  
 Horseshoe Quail Farm, Carthage  
 J. C. James, Elizabeth City  
 Tom Lupton, Whortonsville  
 Dwight Coble, Julian  
 I. K. Stearns, Bryson City  
 R. H. Barringer, Greensboro  
 H. E. Smith, Lillington  
 R. P. Dew, Wilson  
 Bart F. Moore, Raleigh  
 R. J. Shutt, Winston-Salem  
 L. M. Jones, Morehead City  
 C. L. Wyatt, Salisbury  
 Dr. H. H. Fries, Tillery  
 J. Hal Lassiter, Greensboro  
 Thurmond Chatham, Winston-Salem  
 Fanning Fields Farms, Arden

W. E. Lowe, Durham  
 P. E. Swindell, Fairfield  
 J. E. Andrews, Salisbury  
 M. Stainburg, Erwin  
 The Currituck Shooting Club, Poplar Branch  
 C. S. Grant, Mocksville  
 Gordon Carlton, Goldsboro  
 Dr. O. S. Moore, Mt. Holly  
 Robert B. Ivey, Goldsboro  
 J. W. Howell, Charlotte  
 H. L. Whitley, Fremont  
 Norman J. Reed, Hendersonville  
 H. M. Thigpen, Saratoga  
 Chas. M. Griffith, Winston-Salem  
 T. E. Hinson, Charlotte  
 Baxter Carter, Denton  
 B. W. Gossett, Gastonia  
 J. C. Elliott, Gastonia  
 J. C. Taylor, Gastonia  
 Jasper M. Workman, Gastonia  
 John McGee, Charlotte  
 W. A. Julian, Gastonia  
 R. P. Anthony, Gastonia  
 P. I. Henderson, Charlotte  
 H. T. Hauser, Winston-Salem  
 Ray E. Downey, Charlotte  
 J. V. Harper, Gastonia  
 J. D. McCall, Gastonia

## LICENSES TO PROPAGATE GAME BIRDS IN CAPTIVITY

July 1, 1939, to June 30, 1940

C. W. McAllister, Mt. Pleasant  
 Marvin C. Causey, Greensboro  
 Mrs. Tennie Fox, Siler City  
 Haywood M. Taylor, Duke University, Durham  
 Adam D. Etheridge, Jr., Manteo  
 Martin McKinnon, Maxton  
 Jethro Almond, Albemarle  
 Eugene Bolick, Icard  
 B. B. Sisk, Charlotte  
 Dwight Coble, Julian  
 S. O. Stone, Concord  
 Mrs. J. P. McDowell, Tarboro  
 Paul R. Jones, Thomasville  
 Clyde Mathias, Currituck  
 Greensboro Recreational Park Zoo, Greensboro  
 J. W. Davis, Mocksville  
 W. E. Stout, Wallace



A. G. Gordon, Winston-Salem  
 H. L. Whitley, Fremont  
 J. S. McInnis, Raleigh  
 Frank W. Fuller, Salisbury  
 J. E. Owens, Grandy  
 Chas. M. Griffith, Winston-Salem  
 B. W. Gossett, Gastonia  
 H. F. Hauser, Winston-Salem  
 Long Creek Lodge, Devotion  
 R. H. Barringer, Greensboro  
 R. S. Gidney, Shelby  
 Jos. S. Mann, New Holland  
 Montvale Game Farm, Oakland  
 L. M. Jones, Morehead City  
 Currituck Shooting Club, Poplar Branch  
 Dixie Game Farm, Salisbury  
 Joseph P. Knapp, Mackeys Island  
 Horseshoe Quail Farm, Carthage  
 John J. Larew, Mocksville  
 R. H. George, Wilmington  
 L. E. Norfleet, Tarboro  
 R. C. Allen, Durham  
 Frank Misenheimer, Concord  
 Henry McArn, Rowland  
 Mrs. R. A. Ramseur, Lincolnton  
 Frank C. Smith, Charlotte  
 C. P. Barker, Jr., Pleasant Garden  
 Russell S. Walcott, Tryon  
 J. C. Elliott, Gastonia  
 M. Steinburg, Erwin  
 Tom Lupton, Whortonsville  
 B. D. Tillett, Nags Head  
 S. G. Hunter, Julian  
 J. Hal Lassiter, Greensboro  
 F. E. Gray, Greensboro  
 R. E. L. Moser, Burlington  
 R. D. Davis, Winston-Salem  
 C. D. Barbee, Burlington  
 A. B. Hughes, Elon College  
 P. E. Swindell, Fairfield  
 M. L. Andrews, Belhaven  
 J. E. Anderson, Salisbury  
 Charles H. Reed, Asheville  
 Henry C. Cline, Hickory  
 J. B. McCall, Gastonia  
 W. M. Buie, Winston-Salem  
 E. A. Sutton, LaGrange  
 Joe L. Orr, Charlotte  
 L. T. Harris, Durham  
 J. E. Moses, Durham

R. L. Barbee, Durham  
 B. V. Darity, Durham  
 H. E. Holshouser, Salisbury  
 E. C. Joyner, Winston-Salem  
 James McLurd, Cruso  
 Orton Plantation, Wilmington  
 M. O. Causey, Greensboro  
 Ray E. Downey, Charlotte  
 J. C. James, Weeksville  
 Haywood M. Taylor, Durham  
 C. B. Hollowell, Elizabeth City  
 Dr. J. B. Powell, Jr., Ahoskie  
 G. I. Hanes, Winston-Salem  
 N. L. Biggs, Greensboro  
 A. G. Wilkinson, Durham  
 F. R. Shaw, Durham  
 H. L. Roberson, Robersonville  
 Jack Medford, Waynesville  
 Norman Reede, Hendersonville

## PERMITS TO KEEP GAME ANIMALS IN CAPTIVITY

July 1, 1938, to June 30, 1939

Carl Sawyer, Wenona  
 J. R. and J. P. Gudger, Mooresville, Rt. 1  
 Clyde Carter, East Rockingham  
 E. S. Jackson, Henderson, Rt. 2  
 W. F. Smallwood, Apex  
 Henry McDaniel, Evergreen  
 Joe M. White, 521 S. Wilmington St., Raleigh  
 Rupert Atkins, Raleigh  
 Robert N. Wheeler, Franklinton, Rt. 2  
 H. C. Layton, Franklinton, Rt. 2  
 Julian B. Wright, Raleigh  
 S. H. Overby, Snow Hill  
 Mrs. J. M. Ezzell, Delway  
 J. A. Brittain, Jackson  
 Carl Irwin, Sparta  
 P. L. Choat, Sparta  
 Edwards Brothers Fur Farm, Whiteheads  
 Robert Edwards, Sparta  
 Kinston City Park, Kinston  
 G. M. Hinnant, Apex  
 T. G. Hewitt, St. Pauls  
 K. B. Johnson, St. Pauls  
 Avon Privett, Zebulon  
 A. L. Mercer, Beulaville  
 Bobby Stephenson, Beaufort  
 N. V. Langley, Morrisville  
 Joe Jones, New Bern

Walter Covington, Rockingham  
 Joe Revis, West Asheville  
 R. D. Davis, Winston-Salem  
 H. C. Isaacs, Charlotte  
 Seth Small, LaGrange  
 Jim Gray, Robersonville  
 W. B. Tetterton, Plymouth  
 J. J. Snider, Robbinsville  
 N. D. Kistler, Fayetteville  
 W. F. Welch, Warrensville  
 G. C. Cottle, Washington  
 W. K. Winstead, Elm City  
 Bob Midgett, Stumpy Point  
 J. M. Ezzell, Rose Hill  
 Dr. J. R. Gamble, Lincolnton  
 Nestus Freeman, Wilson  
 J. L. Hamilton, Lillington  
 Arthur Ruffin, Greenville  
 Floyd C. Forester, North Wilkesboro  
 G. C. Brannon, Zebulon  
 R. H. Gregory, Rocky Mount  
 E. L. DeBerry, Tarboro  
 S. H. Overby, Snow Hill  
 A. A. Paul, Rocky Mount  
 P. B. Bowen, Burgaw  
 E. S. Jackson, Henderson  
 P. C. Blount, Jr., Jamesville  
 Biltmore Estate, Biltmore  
 H. A. Ragle, Old Fort  
 R. E. Rogers, Greenville  
 Lonnie Ambrose, Buffalo City  
 D. H. Sharp, Candler  
 H. G. Rice, W. Asheville  
 Mack Teague, Franklin  
 R. D. Davis, Winston-Salem  
 E. J. Earle, Bryson City  
 Tom Edge, Micaville  
 K. B. Johnson, St. Pauls  
 T. G. Hurtt, St. Pauls  
 R. H. Nye, Lumberton  
 Joe Green, Salisbury  
 Wayne Caldwell, Lumberton  
 A. S. Pope, Whitaker  
 H. O. Walser, Linwood  
 C. F. Hanes, Linwood  
 Russell McKinley, Washington  
 A. R. Thompson, Spear  
 James Banks, Washington  
 L. E. Jarrett, W. Asheville  
 Walter Laughridge, Spruce Pine



City Fuel and Supply Co., Wake Forest  
 Hardman Revels, St. Pauls  
 Jimmie Wiggins, New Bern  
 Douglas Stewart, Jr., Laurinburg  
 D. W. Revis, W. Asheville  
 J. W. Wells, W. Asheville  
 E. J. Griset, Asheville  
 Ray Moore, Greenville  
 Less Hodge, Rockingham  
 C. C. Thornton, Hamlet  
 C. E. Upchurch, Raeford

## PERMITS TO KEEP GAME ANIMALS IN CAPTIVITY

July 1, 1939, to June 30, 1940

Clifton Bunch, Corapeake  
 H. C. Knighten, Asheville  
 Earl Buoyer, Raeford  
 W. H. Harwood, Robbinsville  
 F. M. Crouse, Graham  
 W. H. M. Blake, Burgaw  
 E. L. Sims, Brevard  
 Maynard Tunstall, Apex  
 Jack Scott, Warrenton  
 The Washington Field Museum, Washington  
 J. E. L. Wade, Wilmington  
 R. L. Barbee, Durham  
 R. C. Allen, Durham  
 Tom Stokes, Durham  
 J. D. Smithwick, Windsor  
 Robert Hunter, Harrellsville  
 Jimmy Adams, Lumberton  
 G. B. Floyd, Whiteville  
 Chas. A. Moore, Charlotte  
 Eugene Nye, Lumberton  
 Henry McArd, Rowland  
 Ferdine Cole, Washington  
 H. L. Troutman, Concord  
 T. E. Parker, Eure  
 T. L. Silver, Raleigh  
 Mrs. Walter M. Fickes, Badin  
 G. C. Gard, Manns Harbor  
 A. N. Holmes, East Lake  
 A. C. Blake, Burgaw  
 H. E. Blake, Burgaw  
 Alton Best, Stumpy Point  
 Chas. A. Moore, Charlotte  
 Dr. B. B. McDade, Burlington  
 W. F. Welch, Warrensville  
 P. L. Choate, Sparta

R. H. Gregory, Rocky Mount  
 E. L. DeBerry, Tarboro, Rt. 2  
 J. D. Smithwick, Windsor  
 I. D. Thorp, Rocky Mount  
 Archie Floyd, Whiteville  
 R. W. Brown, Whiteville  
 James R. and Joseph P. Gudger, Mooresville  
 Nestus Freeman, Wilson  
 Joe Green, Salisbury  
 Jimmie Adams, Lumberton  
 City Fuel and Supply Co., Wake Forest  
 W. L. Smallwood, Windsor  
 Floyd C. Forester, N. Wilkesboro  
 Bob Midgett, Stumpy Point  
 O. H. Bellamy, Enfield  
 Paul's Place, Rocky Point  
 Russell McKinley, Washington  
 J. J. Snyder, Robbinsville  
 R. H. Nye, Lumberton  
 J. M. Ezzell, Rose Hill  
 J. B. Wright, Raleigh  
 Mrs. B. O. Peterson, Delco  
 T. F. Barnes, Wilson  
 C. W. Lee, Winston-Salem  
 J. E. Watson, Greenville  
 Thomas A. Stokes, Durham  
 I. M. Bailey, Raleigh  
 W. C. Huntley, Asheville  
 T. M. Walker, Danville, Va., R.F.D.  
 A. W. Cavin, Black Mountain  
 H. F. Rice, Asheville  
 W. J. Whitehurst, Rocky Mount  
 Floyd Elrath, Candler  
 Sam Bell, Jr., Raleigh, R.F.D.  
 Arch A. Montague, Raleigh, Rt. 3  
 R. G. King, Raleigh, Rt. 5  
 C. F. Hill, Rt. 3, Marshville  
 F. M. Crouse, Graham  
 Dr. J. R. Gamble, Lincolnton  
 A. L. Mercer, Beulaville  
 Curry Conklin, Burlington  
 Arthur Dale, Spruce Pine  
 Lee Fox, Spruce Pine  
 S. D. Holliefield, Spruce Pine

SCIENTIFIC COLLECTION

July 1, 1938 to June

Dr. A. Wetmore, Washington, D. C.  
 M. J. Westfall, Jr., Brevard  
 Mrs. Alexander Mathis, Mantoo  
 Edward L. Meadows, Asheville  
 Earl Cady, Norris, Tenn.  
 Henry M. Doremus, Williamson  
 Maryann S. Johnson, New Holland  
 R. M. Schiele, Gastonia  
 Dr. N. G. Johnson, Washington, D. C.  
 Leland J. W. Jones, Asheville  
 Harold H. Bailey, Miami, Fla.  
 Dr. J. J. Murray, Lexington, Va.  
 William L. Benge, Chapel Hill  
 E. V. Floyd, High Point  
 Miss Ethel B. Plummer, Asheville  
 J. W. Kistler, Raleigh  
 H. C. Rucker, Salisbury  
 Roy Lonnarsen, Raleigh  
 R. B. Armistead, Raleigh  
 John H. Grey, Jr., Raleigh  
 S. A. Walker, Mantoo  
 Dr. Kenneth W. Gayler, Durham  
 Dr. David D. Clark, Charleston  
 Frank Stick, Kill Devil Hill  
 E. L. Nicholson, Burgess  
 G. K. Noble, New York, N. Y.  
 Watson M. Perrygo, Washington, D. C.  
 Gregor Towner, Washington, D. C.  
 James Garfield, Franklinton  
 Yarns E. Davidson, Spartanburg  
 John Hankins, Wadesboro  
 J. B. Hunt, Raleigh  
 W. C. Keller, Spartanburg, S. C.  
 Stanley S. Pollock, Salisbury  
 M. J. Westfall, Jr., Brevard  
 Mark H. Taylor, Raleigh  
 E. D. Bell, Tuscola  
 G. E. Patton, Raleigh  
 Charles L. Wheeler, Washington, D. C.  
 J. C. Darsie, Rockingham  
 James L. Stephens, Raleigh  
 Miss Fleta Howard, Bethel  
 E. V. Floyd, Athens, Ga.

## SCIENTIFIC COLLECTING PERMITS

July 1, 1938, to June 30, 1939

Dr. A. Wetmore, Washington, D. C.  
M. J. Westfall, Jr., Brevard  
Mrs. Alexander Mathis, Manteo  
Edward L. Meadows, Asheville  
Earl Cady, Norris, Tenn.  
Henry M. Doremus, Williamston  
Maynard S. Johnson, New Holland  
R. M. Schiele, Gastonia  
Ira N. Gabrielson, Washington, D. C.  
Leland J. W. Jones, Asheville  
Harold H. Bailey, Miami, Fla.  
Dr. J. J. Murray, Lexington, Va.  
William L. Engels, Chapel Hill  
E. V. Floyd, High Point  
Miss Ethel B. Finster, Asheville  
J. W. Kistler, Raleigh  
H. C. Rucker, Salisbury  
Roy Komarek, Raleigh  
R. B. Armfield, Raleigh  
John H. Grey, Jr., Raleigh  
S. A. Walker, Manteo  
Dr. Kenneth W. Cuyler, Durham  
Dr. Dewitt D. Clark, Clarkton  
Frank Stick, Kill Devil Hill  
E. L. Nicholson, Burgaw  
G. K. Noble, New York, N. Y.  
Watson M. Perrygo, Washington, D. C.  
Gregor Tohwer, Washington, D. C.  
James Curlee, Franklinton  
Verne E. Davison, Spartanburg  
John Hankins, Wadesboro  
J. B. Hunt, Raleigh  
W. C. Kelley, Spartanburg, S. C.  
Stanley Z. Pollock, Salisbury  
M. J. Westfall, Jr., Brevard  
Mark H. Taylor, Raleigh  
F. D. Bell, Tuxedo  
C. P. Patton, Raleigh  
Charles L. Wheeler, Washington, D. C.  
J. C. Darsie, Rockingham  
James L. Stephens, Raleigh  
Miss Velva Howard, Bethel  
E. V. Floyd, Athens, Ga.



## SCIENTIFIC COLLECTING PERMITS

July 1, 1939, to June 30, 1940

Ira N. Gabrielson, Washington, D. C.  
 R. M. Schiele, Gastonia  
 Miss Velve Howard, Bethel  
 Dr. A. Wetmore, Washington, D. C.  
 Dr. J. J. Murray, Lexington, Va.  
 John H. Grey, Jr., Raleigh  
 Leland J. W. Jones, Asheville  
 J. B. Hunt, Raleigh  
 S. Z. Pollock, Salisbury  
 Verne E. Davison, Spartanburg, S. C.  
 Joe C. Rabb, Raleigh  
 T. J. Thaxton, Belhaven  
 E. L. Nicholson, Burgaw  
 Ross O. Stevens, Raleigh  
 R. B. Armfield, Raleigh  
 Ben James, Robersonville  
 Clyde P. Patton, Kinston  
 J. W. Kistler, Raleigh  
 J. C. Darsie, Rockingham  
 H. C. Rucker, Rockingham  
 Edward L. Meadows, Asheville  
 William L. Engels, Chapel Hill  
 F. D. Bell, Tuxedo

## GAME PROSECUTIONS

July 1, 1938 to December 31, 1938

No. Cases .....	1,710
Fines .....	\$ 4,529.49
Costs .....	11,636.27

January 1, 1939 to June 30, 1939

No. Cases .....	491
Fines .....	\$ 1,268.48
Costs .....	3,867.97

July 1, 1939 to December 31, 1939

No. Cases .....	1,089
Fines .....	\$ 5,040.04
Costs .....	6,186.68

January 1, 1940 to June 30, 1940

No. Cases .....	357
Fines .....	\$ 1,388.95
Costs .....	1,998.84

## DISTRIBUTION OF GAME FROM FARMS

For Fiscal Year—	Quail	Turkeys
July 1, 1938 to June 30, 1939.....	3,097	2,331
July 1, 1939 to June 30, 1940.....	2,298	1,558

## INLAND FISHERIES

The fish hatchery operations during the biennium have proceeded on a normal basis with a slight increase in production over the previous biennium as a result of improvements in some of the hatcheries and increased rearing pond space.

At the Fayetteville Hatchery the production of warm water fish during the last year of the biennium has been materially increased due to the addition of six rearing ponds built by WPA. The hatchery has now been developed to its full rearing capacity since no more land is available for extension of the pond system.

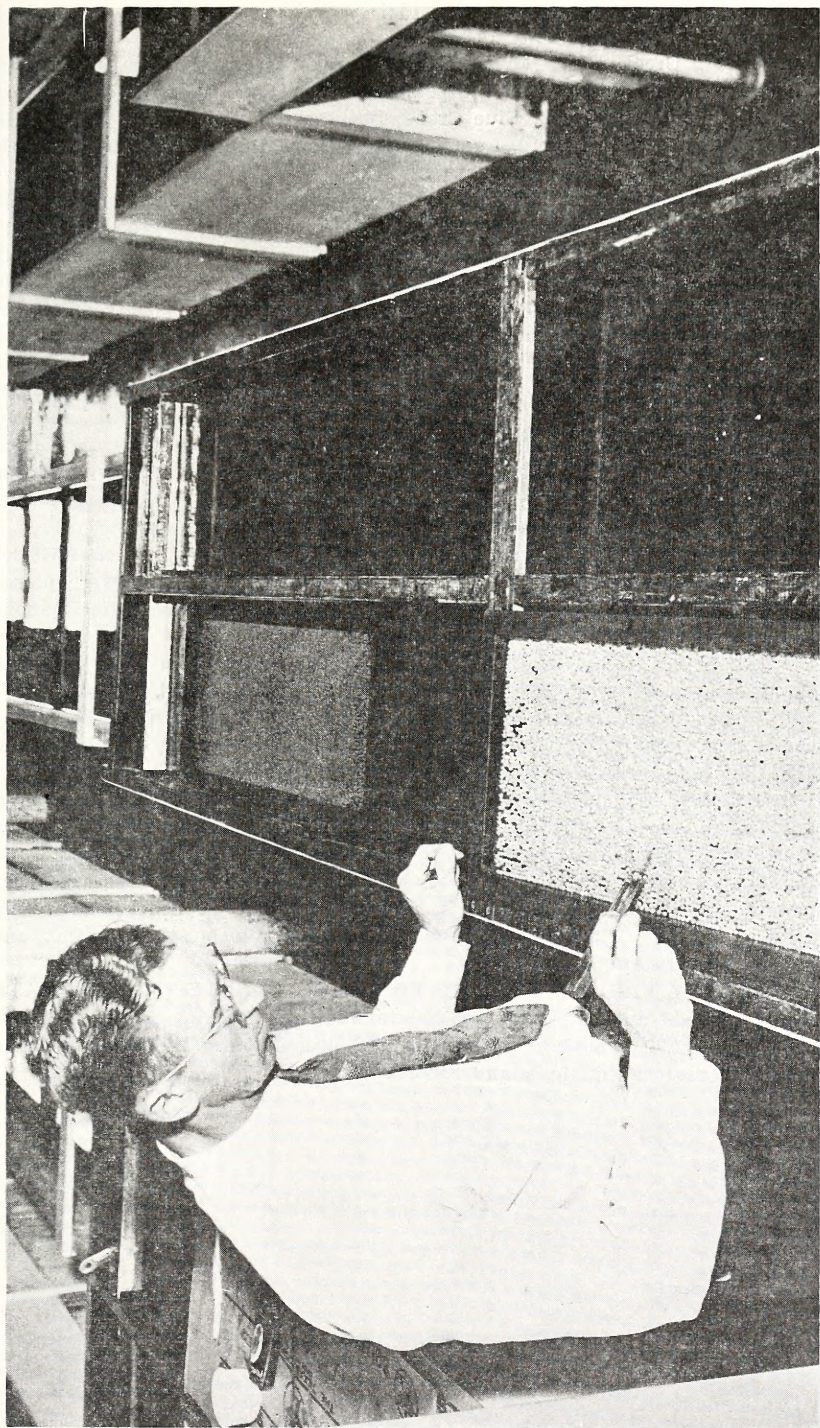
The State has only two hatcheries at which warm water fish can be raised; namely, Fayetteville and Marion. The Marion Hatchery is a very small unit with a limited water supply and no available lands for development. This small hatchery cannot begin to take care of the demands for warm water fish in the Piedmont section and for the lakes in the mountain area. It is, therefore, hoped that the 1941 legislature will provide the necessary funds with which to construct a hatchery of ample capacity on Mackey's Creek in McDowell County where the department owns a suitable site for the erection of approximately 50 rearing ponds. In addition to this main hatchery and in order to meet the requirements of Lakes James and Rhodhiss and other lakes in the section north of McDowell County and also in order to take care of the needs for bass in Lake Santeetlah and other suitable lakes and streams west of Asheville, it is hoped that two sub-stations can be constructed; one in Burke County and one in Graham County to augment the output of the main hatchery at Marion. A bill appropriating \$70,000 for the construction of this hatchery and sub-station sponsored by Senators Morpew of Graham County and Hatcher of Burke County passed the Senate in the 1939 legislature but lacked only two votes of passing the House.

The fish hatcheries of the State were built with money appropriated by the 1923 legislature and no provisions have been made since that time for hatchery development, although the demands for fish for restocking have increased each year because of the continuous increase in fishermen.

The trout hatcheries at Waynesville, Boone, Roaring Gap and Mount Mitchell have produced normally during this biennium and the physical properties at each of the hatcheries have been steadily improved with WPA assistance.

The method of transporting and planting fish from the various state hatcheries with hatchery equipment and personnel has been continued throughout this beinnium and the policy of establishing natural fish management areas or spawning areas on various large clear water streams and lakes has been continued. This method of natural fish culture was applied to areas in the following rivers during the biennium: Chocowinity Creek, Little Swift Creek, Bachelor Creek, South River, Limestone Creek, Lake Summit, Trent River, South West Creek, Shelter Creek, Lake Adger, Lake





Interior scene at "Morrison" fish hatchery, near Waynesville. Hundreds of thousands of trout are hatched in these troughs each year.



Lure, North Creek, Pungo Creek, South River, Waccamaw River, Waccamaw Lake, Haywoods Creek, Broad Creek, Northeast Cape Fear River, Panther Branch Canal, Mill Creek, Blue Creek, Pee Dee Pond, Roberdell No. 1 Mill Pond, Ledbetter's Mill Pond, Lumber River, Black River, Big Coharie, Little Coharie.

Excellent coöperation has been obtained during this biennium from the U. S. Bureau of Fisheries. The output of their trout hatchery on Oconolufy Creek in Swain County has been planted mostly in streams of the Smoky Mountains National Park in North Carolina and other streams in the mountain section, and in addition to that we have received a goodly supply of fingerling trout from the Federal hatcheries at Erwin, Tennessee and Wytheville, Virginia. The majority of the warm water species raised in the Federal hatchery at Hoffman has been allotted to North Carolina streams; as likewise has been the case at the Federal hatchery at Edenton and the Bureau of Fisheries has also operated the striped bass hatchery at Weldon during this biennium without cost to our department. The hatchery building is the property of the State of North Carolina and is the only striped bass hatchery in the United States.

The hatch of striped bass eggs last year was 7,285,000 of which 1,368,000 fry were planted in the Tar River near Tarboro, 1,508,000 fry were placed in the Tar River at Washington and 4,409,000 fry liberated in the Roanoke River at Weldon.

The need for stream studies and scientific fish cultural activities in North Carolina is pressing at this time and the department is trying to find ways and means to provide for such work. It is hoped that with the beginning of the next biennium a suitable man can be found to conduct this work and also that funds will be available to defray the expenses of the work.

The Inland Fisheries work in North Carolina is handicapped now as it has been in the past through lack of sufficient funds with which to conduct the kind of inland fisheries program the State should have. Shorter working hours, higher wages, automobiles and good roads have increased the mobility of the fishing population and the number of fishermen are increasing rapidly, thus bringing an increased drain on the streams and lakes of the State.

A COUNTY FISHING LICENSE FOR EACH COUNTY IN THE STATE would provide approximately \$30,000 in additional fishing license revenue each year which would go a long way toward enabling the department to operate a more adequate inland fisheries program.

## FISHING LICENSE RECEIPTS BY COUNTIES, Calendar Year 1938

County	Non-Resident Licenses	Non-Resident Permits	State Licenses	State Permits	County Licenses	Total Receipts
Alamance.....		2	62	62		\$ 157.00
Alexander.....			50	60		130.00
Alleghany.....	1	13	25	14	97	172.00
Anson.....		1	36	18		82.00
Ashe.....		7	21	5	198	249.50
Avery.....	52	137	126	63	238	918.50
Beaufort.....	3	3	64	184		238.00
Bertie.....	1	2	39	33		101.50
Bladen.....	2	7	72	96		209.00
Brunswick.....			14	27		41.50
Buncombe.....	17	50	1,169	119	187	2,719.50
Burke.....	3	128	347	967	1,046	2,366.50
Cabarrus.....			386	155		849.50
Caldwell.....		11	354	62	678	1,428.00
Camden, See Pasquotank.....						
Carteret.....	8	6	7	3		61.50
Caswell.....	1	3		1		8.50
Catawba.....			181	29		376.50
Chatham.....			7	13		20.50
Cherokee.....	9	25	233	79	119	694.50
Chowan.....	2	1	12	3		36.50
Clay.....	4	7	63	9	74	231.50
Cleveland.....			213	37		444.50
Columbus.....	13	29	132	653		684.50
Craven.....	13	14	46	163		252.50
Cumberland.....		1	87	85		217.50
Currituck.....	11	86	17	54		202.00
Dare.....	2	12	5	14		39.00
Davidson.....			65	146		203.00
Davie.....			16			32.00
Duplin.....	3	3	44	25		118.50
Durham.....	1	4	239	123		548.50
Edgecombe.....	2	5	239	191		588.50
Forsyth.....			350	95		747.50
Franklin.....			20	5		42.50
Gaston.....			159			318.00
Gates.....	9	48	21	67		168.50
Graham.....	138	801	114	360		1,899.00
Granville.....		1	20	5		43.50
Greene.....			48	137		164.50
Guilford.....	3	2	307	69		665.50
Halifax.....		28	130	69		322.50
Harnett.....	1	3	210	191		523.50
Haywood.....	20	125	579	140	960	2,413.00
Henderson.....	123	407	279	93	402	2,028.50
Hertford.....	1	4	34	20		87.00
Hoke.....			12	1		24.50
Hyde.....	9	110	112	1,401		1,079.50
Iredell.....			102	26		217.00
Jackson.....	28	95	148	25	159	702.50
Johnston.....		2	128	328		422.00
Jones.....	1		10	12		31.00
Lee.....			61	21		132.50
Lenoir.....	8	5	305	335		822.50
Lincoln.....			112	93		270.50
Macon.....	22	65	87	40	336	705.00

FISHING LICENSE RECEIPTS BY COUNTIES, Calendar Year 1938  
—Continued

County	Non-Resident Licenses	Non-Resident Permits	State Licenses	State Permits	County Licenses	Total Receipts
Madison.....	5	15	56	5	109	\$ 263.50
Martin.....	1	1	71	62		179.00
McDowell.....	10	61	164	239	710	1,268.50
Mecklenburg.....	1	6	290	30		606.00
Mitchell.....	3	7	178	47	114	515.50
Montgomery.....		3	23	41		69.50
Moore.....	3	8	38	65		131.50
Nash.....			86	84		214.00
New Hanover.....	2	8	130	94		325.00
Northampton.....			70	21		150.50
Onslow.....		7	38	142		154.00
Orange.....			52	14		111.00
Pamlico.....		1	6	18		22.00
Pasquotank-Camden.....		2	17			36.00
Pender.....	2	6	18	98		101.00
Perquimans.....			2	1		4.50
Person.....			20	2		41.00
Pitt.....	1	3	186	176		468.00
Polk.....	85	376	99	191	284	1,378.50
Randolph.....			47	32		110.00
Richmond.....	6	25	170	163		476.50
Robeson.....	4	1	104	63		260.50
Rockingham.....			55			110.00
Rowan.....		1	95	65		223.50
Rutherford.....	43	264	359	394	291	1,685.00
Sampson.....	2	3	42	60		127.00
Scotland.....	3	4	22	7		66.50
Stanly.....			78	39		175.50
Stokes.....			17	8		38.00
Surry.....			13			26.00
Swain.....	23	251	113	99	375	1,016.50
Transylvania.....	13	71	67	26	164	447.00
Tyrrell.....	3	12	26	74		116.00
Union.....			43	57		114.50
Vance.....			62	12		130.00
Wake.....	2	11	327	91		720.50
Warren.....			11	3		23.50
Washington.....		12	24	64		92.00
Watauga.....	7	24	73	22	126	342.00
Wayne.....	1	1	153	228		426.00
Wilkes.....			89	56	216	422.00
Wilson.....	2	4	254	340		692.00
Yadkin.....			5	13		16.50
Yancey.....		7	73	23	142	306.50
Miscellaneous Sales.....	4		7	1		34.50
<b>TOTAL.....</b>	<b>737</b>	<b>3,448</b>	<b>11,592</b>	<b>10,296</b>	<b>7,025</b>	<b>\$ 42,490.00</b>
Lake Mattamuskeet.....						\$ 1,890.50
Western Refuges.....						571.00
To Proportionate Part of Combination Licenses from Game to Inland Fisheries.....						20,395.50
<b>GRAND TOTAL.....</b>						<b>\$ 65,347.00</b>



## FISHING LICENSE RECEIPTS BY COUNTIES, Calendar Year 1939

County	Non-Resident Licenses	Non-Resident Permits	State Licenses	State Permits	County Licenses	Total Receipts
Alamance.....			75	59		\$ 179.50
Alexander.....			48	51		121.50
Alleghany.....		3	35	12	44	123.00
Anson.....			35	35		87.50
Ashe.....		5	37	7	212	294.50
Avery.....	43	110	136	61	220	847.50
Beaufort.....	1	4	55	183		210.50
Bertie.....	1	1	32	32		86.00
Bladen.....	6	4	42	150		193.00
Brunswick.....	1	3	10	43		49.50
Buncombe.....	32	68	1,134	142	262	2,829.00
Burke.....	10	156	364	1,155	1,275	2,786.50
Cabarrus.....			399	223		909.50
Caldwell.....	6	6	373	33	639	1,437.50
Camden, See Pasquotank.....						
Carteret.....	5	13	9	2		57.00
Caswell.....	1			4		7.00
Catawba.....	1	1	442	48	611	1,525.00
Chatham.....			6	14		19.00
Cherokee.....	16	37	318	100	222	1,025.00
Chowan.....	1	4	8	52		51.00
Clay.....	3	31	81	13	78	292.50
Cleveland.....			234	49		492.50
Columbus.....	12	27	136	692		705.00
Craven.....	8	11	61	256		301.00
Cumberland.....		1	79	142		230.00
Currituck.....	42	258	10	102		539.00
Dare.....	2	24	11	19		65.50
Davidson.....			87	200		274.00
Davie.....			8	2		17.00
Duplin.....	1		41	53		113.50
Durham.....			287	170		659.00
Edgecombe.....	1	9	188	221		500.50
Forsyth.....	1		377	141		829.50
Franklin.....			22	6		47.00
Gaston.....			141	15		289.50
Gates.....	8	58	21	127		203.50
Graham.....	167	764	144	332	444	2,497.00
Granville.....			14	5		30.50
Greene.....			42	115		141.50
Guilford.....	3	1	312	121		700.50
Halifax.....		16	139	87		337.50
Harnett.....			214	321		588.50
Haywood.....	30	203	535	129	755	2,242.50
Henderson.....	100	229	236	103	361	1,613.50
Hertford.....	2	4	30	9		78.50
Hoke.....			8	8		20.00
Hyde.....	4	102	93	1,001		808.50
Iredell.....			102	42		225.00
Jackson.....	40	125	164	61	141	824.50
Johnston.....		10	149	412		514.00
Jones.....			7	11		19.50
Lee.....			29	34		75.00
Lenoir.....	2	3	281	359		754.50
Lincoln.....			86	61		202.50

## FISHING LICENSE RECEIPTS, 1939—Continued

County	Non-Resident Licenses	Non-Resident Permits	State Licenses	State Permits	County Licenses	Total Receipts
Macon.....	24	86	91	52	369	\$ 783.00
Madison.....	3		75	2	101	267.00
Martin.....	1	10	52	63		150.50
McDowell.....	9	69	157	299	742	1,319.50
Mecklenburg.....		5	320	59		674.50
Mitchell.....	2	7	172	74	73	471.00
Montgomery.....			22	31		59.50
Moore.....	1	10	37	116		147.00
Nash.....			89	119		237.50
New Hanover.....		5	103	87		254.50
Northampton.....		1	43	22		98.00
Onslow.....		18	33	130		149.00
Orange.....			49	17		106.50
Pamlico.....			2	14		11.00
Pasquotank-Camden.....	1	2	26			59.00
Pender.....		2	23	97		96.50
Perquimans.....			2			4.00
Person.....			17	4		36.00
Pitt.....	2		174	145		430.50
Polk.....	94	429	74	203	249	1,397.50
Randolph.....	1	10	47	40		129.00
Richmond.....	11	23	169	193		512.50
Robeson.....	6	6	108	97		300.50
Rockingham.....			65			130.00
Rowan.....			82	82		205.00
Rutherford.....	74	496	391	636	233	2,199.00
Sampson.....	2	9	48	77		153.50
Scotland.....	2	1	33	29		91.50
Stanly.....			46	45		114.50
Stokes.....		4	18	7		43.50
Surry.....			27			54.00
Swain.....	54	274	112	90	391	1,204.00
Transylvania.....	18	147	117	23	185	667.50
Tyrrell.....		12	19	51		75.50
Union.....	1		44	110		148.00
Vance.....			47	21		104.50
Wake.....	1	4	322	125		715.50
Warren.....			6			12.00
Washington.....	2	5	10	75		72.50
Watauga.....	7	25	68	28	124	334.00
Wayne.....	1	5	139	218		397.00
Wilkes.....		2	102	45	243	471.50
Wilson.....	3	4	253	330		690.00
Yadkin.....			4	8		12.00
Yancey.....	2	6	65	29	145	305.50
Miscellaneous Sales.....	11		7			69.00
TOTAL.....	883	3,968	11,837	11,718	8,119	\$ 46,035.00
Lake Mattamuskeet.....						\$ 1,429.50
Western Refuges.....						1,053.00
To Proportionate Part of Combination Licenses Transferred from Game to Fisheries.....						17,267.00
GRAND TOTAL.....						\$ 65,784.00

## OUTPUT OF FISH HATCHERIES

## Boone

Fish Distribution from	Brook	Rainbow	Brown
July 1, 1938 to December 31, 1938.....	640,000	257,000	
January 1, 1939 to June 30, 1939.....	242,700	211,000	
Total .....	882,700	468,000	
July 1, 1939 to December 31, 1939.....	227,000	103,000	
January 1, 1940 to June 30, 1940.....	149,044	200,000	
Total .....	376,044	303,000	

## STEDMAN FISH HATCHERY

## Fayetteville

Fish Distribution from	Bass	Bream	Crappie and Perch
July 1, 1938 to December 31, 1938.....	25,338	37,700	28,900
January 1, 1939 to June 30, 1939.....	185,076		75 adult
Total .....	210,414	37,700	28,975
July 1, 1939 to December 31, 1939.....	24,225	43,500	17,200
January 1, 1940 to June 30, 1940.....	247,509	13,300	875
Total .....	271,734	56,800	18,075

## MORRISON FISH HATCHERY

## Waynesville

Fish Distribution from	Brook Trout	Rainbow Trout	Brown
July 1, 1938 to December 31, 1938....	213,000	219,000	
January 1, 1939 to June 30, 1939.....	793,000	536,800	
Total .....	1,006,000	755,800	
July 1, 1939 to December 31, 1939.....	192,000	230,000	
January 1, 1940 to June 30, 1940.....	228,000	155,000	3,200
Total .....	420,000	385,000	3,200

## MARION FISH HATCHERY

## Marion

Fish Distribution from:	Rainbow	Brown	Bass	Bream
July 1, 1938 to December 31, 1938.....			21,000	71,000
January 1, 1939 to June 30, 1939.....	441,500	177,200	97,100	
Total .....	441,500	177,200	118,100	71,000
July 1, 1939 to December 31, 1939.....	21,400		9,600	36,900
January 1, 1940 to June 30, 1940.....	699,000	113,740	242,500	625
Total .....	720,400	113,740	252,100	37,525



## ROARING GAP FISH HATCHERY

## Roaring Gap

Distribution of Fish from:	Brook	Rainbow	Brown Bream	Crappie
July 1, 1938 to December 31, 1938.....	183,800	22,400	6,000	2,000
January 1, 1939 to June 30, 1939.....	64,800	93,100		3,800
Total .....	258,600	115,500	6,000	5,800
July 1, 1939 to December 31, 1939.....	117,100	126,800	52,600	4,050
January 1, 1940 to June 30, 1940.....	93,750	138,200		1,430
Total .....	210,850	265,000	52,600	5,480

## EDENTON FISH HATCHERY (Federal)

## Edenton

Distribution of Fish from:	Bass	Bream	Crappie
July 1, 1938 to December 31, 1938.....	150	1,100	200
January 1, 1939 to June 30, 1939.....	14,500		
Total .....	14,650	1,100	200
July 1, 1939 to December 31, 1939.....	180	28,500	400
January 1, 1940 to June 30, 1940.....	3,750		
Total .....	3,930	28,500	400

## MOUNT MITCHELL FISH HATCHERY

Fish Distribution from:	Brook Trout
June 1, 1938 to June 30, 1939.....	103,750
Distribution from:	Brook Trout
July 1, 1939 to June 30, 1940.....	29,078

## FISH PROSECUTIONS

## From July 1, 1938 to December 31, 1938

No. Cases .....	849
Fines .....	\$2,546.00
Costs .....	5,386.71

## January 1, 1939 to June 30, 1939

No. Cases .....	883
Fines .....	\$2,493.91
Costs .....	6,288.27

## July 1, 1939 to December 31, 1939

No. Cases .....	468
Fines .....	\$2,459.50
Costs .....	2,947.94

## January 1, 1940 to June 30, 1940

No. Cases .....	772
Fines .....	\$2,501.21
Costs .....	3,775.73

## DIVISION OF MINERAL RESOURCES

The work accomplished by the Division of Mineral Resources of the Department of Conservation and Development during the past biennium, may be divided into two groups: A. Office Work. B. Field Work.

### A. OFFICE WORK

The routine and special activities of this class during the past biennium may be summarized as follows:

1. A great number of requests have been received for information on the mineral deposits of the State, being both of a specific nature regarding a certain mineral or district and of a more general nature about the resources of the State as a whole. These requests have been more numerous than previously, especially during the last semester, due to the nation wide search for strategic and critical minerals so necessary for national defense. The interested parties desire not only information regarding the location and geologic occurrence of the mineral in question, but also regarding preparation for the market, uses, prices and marketing. Other requests are from persons desirous of contacting producers of certain mineral products, and thus this Division endeavors to serve as a clearing house to bring together producer and user. Many of the requests are answered by merely sending a certain publication, approximately 975 having been sent out during the past biennium, but others require a special investigation of the existing literature to give up-to-date information.

2. During the biennium approximately 450 samples of minerals were received in the office, identified, and reported upon. An assay laboratory was established and its facilities are available, at cost, to the mining industry and to the people of the State in general. In addition to routine analyses and assays which numbered over 2,000 during the past biennium, some research was also carried out by the Division Chemist and the possibilities of commercial production of magnesium sulphate reported on. Concerns in both New York and Detroit were interested in this project. A study of the use of granite dust in the ceramics industry was also undertaken.

3. During the biennium no new publications were issued. However considerable information was compiled so that a review of the mineral industry covering the period since the publication of the last Economic Paper, No. 64, may be issued at an early date.

4. The Division of Mineral Resources has also continued its coöperative work with the U. S. Bureau of Mines and the U. S. Bureau of Census in collecting, studying and indexing the statistics of the State's mineral production, thus permitting the publication of these data when funds are available.

5. A Relief Model Map was prepared under the direction of the State Geologist and was exhibited at the World's Fair in New York, the cost being covered by the World's Fair fund and WPA. The exhibit apparently attracted considerable attention and numerous inquiries regarding mineral resources have been received from World's Fair Visitors.

6. The State Geologist, in coöperation with the WPA, made application for a mineral investigations project in North Carolina, to make \$200,000 available for extensive work. The project failed to materialize, however, as it was ruled that benefits from the same would accrue to the interest of individual property owners rather than to the State as a whole.

7. The preparation of news articles for the News Bureau and other publications has been continued in an effort to properly advertise those mineral deposits having commercial possibilities and also as part of a general program of education for the general public to develop what might be called "Mineral Mindedness."

8. A number of conferences were held with persons interested in mineral development and as a result of these, several development projects were undertaken and others are to be expected when conditions permit.

9. A confidential report of the War Minerals Board was submitted for study by this Division, for the purpose of determining if the State of North Carolina could supply sufficient mica to meet the demands of national defense. This study indicated definitely that the deposits in North Carolina are of sufficient size and extent, and these deposits can produce a grade of mica suitable for any purpose in case of war.

## B. FIELD WORK

### Metallic Minerals

*Copper.* An increased copper price has brought about the revival of interest in this base metal. This Division has supplied information about two properties—one in Ashe County and another in Swain, the former having been core-drilled and a trial shipment made and plans made for doing the same at the other.

*Gold and Silver.* During the past biennium many gold mines were visited and the Division coöperated with several companies in the construction of recovery plants. Two important deposits in Montgomery County were located and an additional one in Halifax County. A Canadian corporation has started shaft-sinking near Rutherfordton and there is promise of activity in both Buncombe and Halifax counties.

*Lead-zinc.* Four lead-zinc properties in the State were sampled and plans made for the development of two deposits—one in McDowell County and one in Haywood County.

*Manganese.* Of all the strategic minerals, manganese is the most important being both the one of which the greatest tonnages are required, and the one concerning which there is most difference of opinion as to the domestic possibilities. Increased difficulty in maintaining import shipments and stockpiling in this country have brought about price increase from \$12 and \$14 per ton to as much as \$30. An important deposit has been found in McDowell County and as a result of activities by this Division, its development has started and several shipments made. Another deposit, in Surry County was visited and appears to be commercial. Additional deposits in Wake and Cherokee counties are being prospected. Research on the beneficiation and electrometallurgical processes by the various agencies



interested is still far from complete and the Division's laboratory is doing some work along these lines.

*Molybdenum Deposits.* The deposits of this mineral in Halifax County have attracted considerable attention and the State Geologist in company with Geologists from several companies visited the locality and made a preliminary study.

*Nickel.* The interest in strategic minerals has brought about a continuation of the investigation of the low-grade deposits in Jackson and adjoining counties. Two Engineers have been engaged for some time in blocking out ore and endeavoring to determine the proper concentration method. This Division also sampled the deposits and carried out concentration tests. These tests proved the possibility of also producing rock wool from smelter slag and olivine as an additional by-product from concentration.

*Titanium Deposits.* Three titanium deposits were visited, samples collected, and analyses made. As a result of these investigations, one deposit is to be developed in the near future.

### Non-metallic Minerals

*Asbestos.* During the summer of 1939, the Johns-Manville Company became interested in the North Carolina asbestos deposits and the State Geologist gave them all possible assistance. Approximately 60 deposits were optioned and four or five became producers, the product being shipped to experimental plants in New York. The erection of processing plants in this State may follow, should the extent of the deposits warrant.

*Clay.* The clay mines in North Carolina have undertaken full-time operation in order to meet the requirements of the industry, due principally to their ability to replace successfully the English kaolin which prior to the present war supplied normal peace time requirements. This Division in coöperation with other agencies, has proven that the kaolin reserves are much greater than previous estimates indicate and that its grade and nature are satisfactory for the requirements of the market. A new mine has recently inaugurated operations.

*Mica.* The strategic importance of this commodity and the fact that the war in Europe has cut off most of the importations, have caused an enormous increase in activity among mica producers, perhaps this industry is more active than ever before. Two scrap mica recovery plants were built in 1939, as well as two large grinding plants, a third being rebuilt. Three large scrap mica deposits were investigated by this Division and as a result a New York concern purchased them and is planning on the construction of new plants at a cost of around \$150,000. It has been estimated that the 1939 mica production had a value in excess of a million dollars.

*Pyrophyllite.* The production of this mineral has become one of the major mineral industries of North Carolina, and due in no large part to the activities of this Division. The investigations have not been confined to its geological occurrence but particularly in the last year considerable research as to its uses has been carried out and several new uses developed. A new plant has recently been built and another rebuilt. The battery manufacturers of the United





States are using a considerable amount of pyrophyllite. Its use in ceramic bodies has increased rapidly. A new use recently developed is, as a refractory known as "Pyroplastic," employed chiefly to patch disintegrated fire brick, thereby obviating costly shut downs and lengthening the life of furnace linings. According to recent tests, the platy or schistose variety of pyrophyllite makes a satisfactory paint filler. The 1939 production exceeded all previous records.

*Talc.* Investigation and surveys of the talc deposits in Cherokee and Graham counties have been carried out during the past biennium and two new deposits have been opened up. Core-drilling of several deposits has been done and one company alone spent approximately \$15,000 in exploration in one year.

*Vermiculite.* The State Geologist visited many deposits of vermiculite during the past biennium, and several commercial ones have been found. A Detroit firm has become interested in this product as in a fine state (98 per cent through 325. mesh) "it has a use as a coolant and lubricating agent in automobiles, both in the motor and in the transmission and rear end. It disperses readily in lubricating oil like graphite and provides a means of taking up uneven wear in automobile engines, increasing compression, and reducing oil consumption by filling the pores of metallic surfaces within the cylinders."

### Well Locations

The location of wells and investigation of water resources was continued as an important function of this Division. During the calendar year 1939, over 50 wells were located throughout the State for public works, municipal water supply projects, for schools, for the Prison Department, as well as private and industrial plants. The following is a partial list of such locations:

Three in Alamance and Guilford counties.

Three at the Town of Carthage.

Two at the Town of Drexel.

Two at the Town of Rural Hall.

One at the towns of Clayton, Yanceyville, Lake Lure, Denton, Creedmore, Sparta, Rockwell, Red Springs, High Point, Gibsonville, Burlington, and Durham.

### RECOMMENDATIONS

Since the activities of this Division may be summarized as investigational, promotional and educational, it is obvious that there should be a proper balance between each, and funds made available to undertake worthwhile projects of each kind.

It is believed that the continuance of the routine activities of the Division is highly desirable as well as active coöperation with the U. S. Geological Survey, the U. S. Bureau of Mines, and the Tennessee Valley Authority, as well as the educational institutions and the other departments of the State Government and Divisions of the Department of Conservation and Development. Due to the international situation, it may be expected that interest in those minerals necessary to national defense will continue and studies of these must be continued and accelerated. Likewise, studies of mineral products must not be confined wholly to geological investigations, but should include complete



information regarding mining procedure, technology, uses of the product and economic studies of the market.

There should exist a definite program to fill a real need and some of the worthwhile activities which are to be highly recommended are set forth as follows:

Certain reports of the old Geological and Economic Survey are now out of print and out of date. Some of these should be reprinted or revised and reprinted.

Additional reports should be prepared to cover areas, metals and minerals which have never been the subject of special reports. It is especially desirable that studies be made and reports be prepared where deemed advisable on such commodities as manganese, titanium, chromium, nickel, copper, mica, spodumene, asbestos, vermiculite, feldspar, kyanite and olivine.

The existing geological map of the State needs revision in the light of new information and its preparation in colors for distribution to interested parties is highly desirable. Only a small portion of the State has been mapped geologically on a suitable scale. This work should be continued, posting geology on existing topographic maps and preparing these base maps where they do not exist.

The publications of this Division should include a series of "Information Circulars" to be written in a semi-technical style, mimeographed and giving a brief but complete description of a single commodity or area.

The "Educational Series" should include additional numbers, to popularize geology and the mineral industry, particularly in the secondary schools.

In order to create and maintain interest in the mineral resources of the State, this Division should sponsor and contribute to general activities throughout the State, which have this objective.

## DIVISION OF STATE ADVERTISING

At the conclusion of this biennium, the State Advertising program completed three years of operation. The project is definitely beyond the experimental stage and it is believed that its value has been proven.

With the experience of three years behind it, the advertising program now has the additional factor of cumulative results in its favor, and the momentum already gathered is increasing the relative value of the campaign. Each expenditure in the future will undoubtedly be considerably more fruitful than would have been the case had there not been a consistent campaign preceding.

Although a well rounded campaign necessitates a variety of co-related activities the bulk of the advertising funds has consistently gone into the purchase of white space to carry the primary message of the attractions of North Carolina in newspapers and magazines of known circulation (Audit Bureau of Circulation) and into the areas and markets where previous study indicated the greatest return for every dollar could be expected.

An outstanding fact in regard to the program is that not one cent of the appropriation has gone into the purchase of space in North Carolina publications. This accomplishment was made possible through the coöperation of the North Carolina Press Association which, in a formal resolution, advised this course. As a result, not one of its members has made a solicitation for any of the funds. The radio stations of the State have also assumed a similar attitude and have not made a solicitation.

The same general pattern set up three years ago at the beginning of the campaign, with respect to display advertising, with certain limitations found advisable from experience, was followed during the biennium. The advertisements were planned under three main divisions—Tourist, Industrial, and Agricultural.

The first step in placement was the definition of the market which North Carolina could best approach in selling its attractions to tourists, industry, and agriculture. Markets are made up of people, but location, distance, and transportation set up limits to the most logical and profitable markets.

A survey showed that more than 75 per cent of North Carolina's tourist market came from that portion of the country east of the Mississippi River and this fact was borne in mind in the selection of national magazines and newspapers to carry North Carolina copy. Advertisements, carefully prepared and timed, appear in leading northern, mid-western, and southern newspapers.

In national magazines and newspapers, the advertising is reaching more than 22,000,000 subscribers and a much larger number of readers. Although the main objective of the program has been to sell the attractions of the State, the ads have been successful in producing a substantial return in inquiries which had reached 92,007 from the time the campaign was launched in 1937 through June 30, 1940. Literature telling a complete story of North Carolina's many and varied attractions in pictures and text has been mailed in answer to each inquiry.

In addition to national magazines, reaching millions of families in the higher income groups and daily newspapers in the metropolitan centers of the North, Mid-west, and South, special copy, featuring certain of the State's outstanding attractions, was prepared and placed in publications devoted to these features. For instance, such publications as *Golf* and *Golfing* were used in helping to popularize the State's famous golf courses. Advertisements on outdoor attractions appear in such magazines as *Field and Stream* and *Outdoor Life*. Special advertisements also appeared in publications reaching particular groups such as *The Grade Teacher*. The boys' and girls' summer camps were called to the attention of parents of the nation in special advertisements in the school and camp sections of some of the leading national magazines best suited for this purpose.

Listed below are some of the national magazines which have carried North Carolina's tourist advertising:

Saturday Evening Post	Red Book
Time	Parent's Magazine
Newsweek	The Grade Teacher
The New Yorker	Harper's Bazaar
Harper's Magazine	Sports Afield
National Geographic	National Sportsman
The Atlantic	Field and Stream
Collier's	Outdoor Life
Life	Hunting and Fishing
Vogue	Golf
Cosmopolitan	Golfing
American Weekly	

Industrial advantages of North Carolina have been told in national magazines reaching the leading business executives of the nation such as *Time*, *Business Week*, *Forbes*, *Nation's Business*, *Fortune*, and *Manufacturer's Record*.

These advertisements have pointed to North Carolina's strategic location outside the congested industrial areas, yet close to the richest consuming markets in the nation. Such copy has emphasized the fact that well over half the nation's population is within a 600-mile radius of the State. The advertisements invite industry to investigate North Carolina on the basis of a mild, year-round climate which reduces construction and production cost; friendly, coöperative labor, 99 per cent native-born; one of the soundest tax structures in the nation; business-minded legislation; outstanding systems of transportation; unlimited supplies of raw material; and highly developed power at reasonable rates.

*Personnel:* After organizing the work and doing a creditable job as manager of the Division's News Bureau since the inauguration of the Advertising program, Bill Sharpe resigned early in 1940 to enter private business.

Mr. Sharpe developed for the State an exceptional press which attracted widespread attention. In doing this, he obtained for the State a tremendous volume of favorable publicity which was a factor of considerable importance to the advertising program.



He was succeeded by Robert L. Thompson, a veteran newspaper and press service man.

During the biennium, Emmett Atkins also resigned to become connected with one of the large press services. He had rendered capable service as news writer and in other capacities in the News Bureau.

T. Ed. Pickard, Jr., who organized and did constructive work in setting the Governor's Hospitality program into motion, resigned early in the biennium to return to private business. As directing head of the hospitality work, Mr. Pickard displayed ingenuity and inaugurated a phase of the program which is playing an important part in developing the tourist business of the State and serving to make North Carolina conscious of its possibilities and obligations along this line.

Mr. Pickard was succeeded by J. C. Baskerville, another experienced news man, who had kept close contact with the advertising program and other phases of the Department's activities over a period of several years as correspondent for a group of North Carolina dailies.

Miss Eula Lincoln, stenographer-clerk, who had performed faithful service with the News Bureau, was transferred to another Division of the Department during the biennium.

The positions formerly filled by Mr. Atkins and Miss Lincoln were not filled, as an economy measure, and the News Bureau operated most of the biennium with these staff curtailments, made necessary by the 20 per cent reduction in the appropriation during the biennium.

*Follow-up Campaign:* Each inquiry developed through advertising is viewed as representing a probable visitor to the State and every feasible effort is extended to complete the selling job already done by the advertising copy.

The primary means of following up the inquiry is through literature. Obviously there are such varied interests among those seeking information concerning the State as to necessitate different types of literature, and for this reason it has been necessary to issue several booklets covering the chief subjects of inquiry.

Early in the campaign, the title "North Carolina Variety Vacationland" was adopted for the main mailing piece. So far, three issues of this booklet, totaling some 195,000 copies, have been printed.

During the current biennium, more than a quarter of a million pieces of literature have been printed and the distribution, including booklets from previous issues, reached about the same figure. Mailing pieces issued during the two year period and the quantity in each case are as follows:

Variety Vacationland (2d issue).....	55,000
What's Doing in North Carolina.....	100,000
Guide to Historical Highway Markers.....	2,500
Variety Vacationland (3d issue).....	65,000
What's Doing in North Carolina (2d).....	30,000
Total .....	257,000

Titles of other literature from previous printings which were also distributed during this report period include *Outdoors in North Carolina*, *Golf*

*in North Carolina, Agricultural Opportunities, and North Carolina, the Balanced State.*

### MISCELLANEOUS ACTIVITIES

In any promotional campaign a variety of miscellaneous activities which contribute in varying degrees to results arise. No logical means of obtaining constructive publicity for the State is passed up, and such naturally add to the sum total of efforts expended by members of the staff and other Department officials.

Part of these duties are assumed by the News Bureau, part by the Governor's Hospitality Committee, and the rest in the office of the Director and Assistant Director. Only those not covered elsewhere will be included in this part of the report.

*Postage Meter Designs:* Uncle Sam's mail has been used to help publicize the attractions and advantages of North Carolina through the medium of postage meter designs.

The Advertising Division had an artist to prepare five designs covering the subjects of industry, agriculture, golf and scenery (two of the latter) and offered to furnish plates made therefrom at cost to concerns in the State having a volume of outgoing mail.

A check on the number of these designs placed as a result of the activity of the Division showed at least 30 in use by some of the largest volume mailers in the State. Although no definite count can be had, it is known that hundreds of thousands of persons have been told of North Carolina's advantages through this medium. It is estimated that each piece of mail passes through 16 hands by the time it is received by the addressee. This gives an idea of the number of persons who have been reminded of the State as a result of this device.

*Invitations to Non-resident Students:* Prior to commencements in the colleges and universities of the State in 1939, the Division issued a special invitation to the parents of several hundred non-resident graduates to visit North Carolina.

Mailing lists furnished by six of the larger institutions were used to test the value of this approach. Although it is believed that many were attracted to the State as a result, there was no practical means of checking directly. However, there can be no doubt that there was a favorable psychological effect in the minds of these parents and undoubtedly an increased affection for North Carolina.

*Literature Binders:* Realizing the opportunity afforded by unoccupied time while traveling, the Division worked out means of placing North Carolina literature in the lounge-parlor cars of Pullmans passing through and near the State, waiting rooms of air stations, steamship libraries, travel offices, etc.

This literature was assembled in loose leaf, rigid binders for the convenience of readers and for its protection. One of each of the pieces issued in connection with the Advertising program was used in order to complete a picture of North Carolina as a desirable place in which to live, invest, find recreation, and establish an industry.

These sets of literature proved so popular that the original order of 200 binders did not nearly meet the demand and it was found advisable to order 100 additional copies. A number of favorable comments from the traveling public have been received concerning this advertising medium. To this feature has been traced a decision on the part of many people to spend a vacation in the State.

## STATE NEWS BUREAU

The policy of the State News Bureau is set forth in its name. Many states have their publicity offices but North Carolina operates a news service. The result, after three years operation, is that this bureau has the confidence of almost every national agency for the dissemination of interesting facts and stories and of newspapers, magazines, moving picture concerns and radio broadcasters from one end of the country to the other. By avoiding press agency in its usual form, North Carolina today enjoys as good press as any state in the Union.

The files of the bureau contain many letters which will bear out the above statement.

Two years ago, the bureau's first report to the Legislature told the story of a single year's operation. The start that had been made promised a service of ever increasing value to the state. From the following brief review of the more important activities of the bureau—arranged without regard to comparative value—it can be judged whether that promise has been fulfilled:

It is the belief of the State News Bureau that the story of North Carolina is one of the most interesting to be found in this country. Our state has been blessed by nature and history, alike. It has the most magnificent mountains in eastern America; a climate unsurpassed from the standpoint of industry, agriculture and recreation; and a people who have been pioneers from the day Sir Walter Raleigh's colony first set foot on Roanoke Island until today when North Carolina leads the way in such achievements as the creation of a school system which gives the same educational opportunity to the children in each of its 100 counties. In other words, the bureau believes that the story of North Carolina is best told without embellishment and that the more facts the people of other states know about our own, the more this state will prosper.

From this bureau during the past two years have gone hundreds of news and feature stories and thousands of pictures to the press of the nation. We have told about our schools; how North Carolina lives on its income and pays its debts; how industry and agriculture have grown and what a variety of vacations there are to be found in the state. Although it is not the function of the bureau to point out the state's faults, it has stuck strictly to facts in telling this story, and today there are few, if any, editors who question the accuracy of a release from this office. That is one of our most valuable assets. For instance, in the regular releases sent the rod and gun writers of more than 90 newspapers, we tell when the fish are not running as well as when they are; or when describing and depicting the scenery from the Blue Ridge Parkway, we make it clear that the roadbed is not completed and that on certain sections the going is rough.



One of the principal activities of the bureau has been the preparation and dissemination of illustrated feature stories, the publicity value of which may on first glance be questioned. Recent examples are the widely used story of the racial mystery of the Croatan Indians; the story of Dellview, the town with a population of eight people formed to protect a chicken farm from stray dogs; and the yarn about the State College boy who worked his way through college nursing babies. But it is our opinion that any story which depicts North Carolina as it is—an attractive and interesting place to visit and a fine progressive state in which to live—is good publicity. If we confined our releases to straight “plugs” as is done by some other similar agencies, we would run into two difficulties. In the first place, we wouldn’t get much of it printed, and, in the second, the reader wouldn’t be interested in the story after it was printed.

The written and photographic material sent out from this office during the past two years has covered a multitude of subjects and gone to many different kinds of editors and publications. There have been travel stories, business stories, feature stories, school stories, game and fish stories, and many others. The bureau has a number of mailing lists and sends its stuff only to those editors which it believes will be interested in that particular release. A page of “fillers,” the little items often used to fill out a column, are distributed widely but when the subject concerns the increase in North Carolina’s manufacture of hosiery, the appeal is limited. Moreover, experience has shown it a mistake to send too many articles or pictures to any one editor for once he has become flooded with North Carolina stories, the temptation is to throw the whole pile away. One good story, received about the time the editor is “fresh out” of North Carolina material, will get the state more publicity than a dozen mediocre releases scattered to the winds.

Just as important as the material conceived and prepared in the office are the suggestions the bureau makes to editors for picture stories to be done by their own staff men—and the service it renders them in this regard. Articles and pictures that have appeared and will appear in such publications as *The National Geographic*, the *American Magazine*, *Life*, and others do not carry any indication of the bureau’s part in their preparation—which is as it should be. But the fact remains that they were the direct result of the bureau’s effort and that members of the bureau’s staff worked with representatives of the publication in preparing them.

An outstanding example of such efforts is the illustrated article which the *National Geographic* has prepared on North Carolina, but which will not appear until the early part of 1941, according to present plans. For eight weeks, this publication kept two men, a writer and a photographer, working with the bureau in every section of the state. Some thirty-odd pages of pictures, many of which will be in color, will be carried along with approximately 10,000 words of text. According to the estimate of one of these men, the magazine itself is spending more of its own money on this one article than has been spent in operating the entire bureau for the past two years and, if evaluated on the basis of what advertising space costs in the magazine, this single article will be worth more to North Carolina than the entire appropriation for operating not only the bureau, but the entire division for a year.

The suggestions and services of the bureau and its staff is not limited to magazines. Examples of similar efforts include:

The preliminary efforts of the bureau in New York which resulted in North Carolina exceeding all other states in the publicity received from its special day at the World's Fair and the fact that the state shared the spotlight with the battleship when the *U.S.S. North Carolina* was launched last June.

Suggestions made to newsreels which have brought more moving picture cameramen into North Carolina during the last two years than appeared here in the previous decade. (A statement made by a representative of one of the largest picture companies.)

Tips to cartoonists, such as Ripley, and the bureau's coöperation in running down strange facts about the state.

The assimilation and preparation of special material for broadcasters—ranging from Kay Kyser, the bandleader, to those who make travel talks over one or a chain of stations.

The furnishing of pictures to postcard companies, book publishers, and travel, industrial and recreational exhibits.

Personal contacts with editors, writers and photographers not only in their own offices, but also here in North Carolina where scores of them have been entertained and personally conducted to places and events in which they were especially interested.

In other words, in bringing North Carolina to the attention of the outside world, the bureau has used every form of medium and by no means confined itself to its own typewriters, mimeograph and cameras.

One of the outstanding successes of the past two years was due only in small degree to the work of the division itself. The credit belongs to the generosity and foresight of Richard J. Reynolds, Jr., who has given the bureau a two-reel travel moving picture in color and sound, which is expected to be one of its valuable assets. Financially it was absolutely impossible for the division to prepare the type of film needed to show North Carolina to the best advantage. When Mr. Reynolds heard the story he volunteered to foot the bill and probably by the time the Legislature meets this film will be ready for presentation. Requests for it already are so numerous that it is the opinion of the committee that some 12 prints of the picture will be required to meet the demand. It will be shown to organizations and schools and at various exhibits all over the country as well as to North Carolinians themselves.

No report of the activities of the State News Bureau would be complete without special attention being given its photographic library. This is a picture age and there is not the slightest doubt that a good picture in a newspaper receives attention from many more people than read the average story. The photographer's boast that "one picture is worth a thousand words" may be some exaggeration, but certainly the best story in the world is far more valuable when properly illustrated. Moreover, in publicizing the recreational advantages of North Carolina, the whole story frequently can be told by pictures with brief captions and in that form attracts the greatest attention. Recently, a single photograph of the Great Smoky Mountains National Park, sent out by this bureau, was carried across the entire page of both the *New York Times* and the *New York Herald Tribune*.



It so happened that each paper also gave considerable editorial attention to the park, but the picture probably captured the attention of 10 prospective visitors to every one who read the stories and without the picture the stories probably will not have been read by half as many people.

The bureau now has a photographic library of approximately 20,000 North Carolina pictures. These negatives include every type of photographs from bathing beauties and golf courses to bear hunters and the manufacture of cigarettes. It is constantly being enlarged with pictures being taken to illustrate news stories and developments and with "stock shots" of the entire North Carolina scene. It is in daily use as requests for special types of pictures are received from all types of publishers and printers who, until this bureau was established, had no adequate source of North Carolina illustrations. Certainly this collection is not complete, nor will it ever become permanently so long as the North Carolina scene continues to change, but there is no doubt it is one of the most valuable possessions of the office and department.

One of the most important activities of the bureau has been the preparation of such publications as *Variety Vacationland* and other booklets and pamphlets concerning the state—as well as the pictorial assistance in the preparation of publications by other state agencies, such as the highway map. To get out attractive literature and stay within the limits of available funds has proved a problem and there is no doubt that new editions of some of our booklets and the addition of others to the list is desirable. Nevertheless, the bureau believes these booklets are creditable and that they do attract the outside reader's interest in North Carolina.

So much for a brief summary of the work of the State News Bureau. Now for a report of two things which have happened to the bureau since the Legislature last met. In the first place, when the state advertising and publicity appropriation was reduced from \$125,000 to \$100,000 a year, the budget for the bureau also had to be reduced and it was deemed inadvisable to replace a staff writer who resigned to accept a more lucrative position. The fact that the bureau had the two first and hardest years behind it, made it possible to accept this 33 1/3 per cent reduction in its editorial staff without appreciable loss of progress. Nevertheless, it is equally true that the possibilities of publicizing North Carolina present a larger field than is now being worked.

Toward the end of the biennium the bureau suffered the loss of Bill Sharpe, who had been its manager from the start of the program. More than any other person, he deserves credit for the success of this work. Without model to work from or example to follow, he laid the foundation for the "good press" North Carolina enjoys in the nation today. The value of his services to the state can never be appreciated more than it is by those who know most about the bureau and its work.

## GOVERNOR'S HOSPITALITY COMMITTEE

The office of the Governor's Hospitality Committee acts as the first point of contact with the thousands of persons in other states who have become interested in North Carolina through the State Advertising Campaign and who have written for information and booklets concerning the State.



During the two fiscal years of this biennium, ending June 30, 1940, a total of 48,815 inquiries were received by mail, a majority in response to the display advertising of the Division of State Advertising. An additional 25,700 requests for information were received from the North Carolina exhibit at the New York World's Fair, making a total of 75,515 inquiries from all sources during this two year period. During the first year of the state advertising effort, from July 1, 1937 to June 30, 1938, a total of 21,050 inquiries were received.

While a majority of these inquiries are answered with booklets and printed literature, thousands of personal letters have been written in reply to those asking for specific information. The Secretary of the committee is frequently called upon to act as a travel counsellor and outline complete trips to North Carolina for prospective visitors, in addition to giving information concerning shortest or best routes from other states. Many inquiries ask for definite information concerning particular localities and sections, distances to various cities and towns in this state from places in other states, and similar data. A large number ask for lists of hotels, tourist camps and tourist homes that quote daily and weekly rates. All inquiries of this nature are answered by personal letters.

### TABULATION OF INQUIRIES

A tabulation of the mail inquiries received during the past biennium, with the World's Fair inquiries shown at the bottom and included in the total, follows:

Inquiries received from July 1, 1938 to July 1, 1939:

July, 1938 .....	4,028	
August .....	3,169	
September .....	3,330	
October .....	1,446	
November .....	616	
December .....	481	
January, 1939 .....	603	
February .....	980	
March .....	955	
April .....	1,991	
May .....	3,196	
June .....	3,121	
Total .....		23,916

Inquiries received from July 1, 1939 to July 1, 1940:

July, 1939 .....	2,851
August .....	2,056
September .....	1,262
October .....	953
November .....	857
December .....	768
January, 1940 .....	855
February .....	1,157

March .....	2,523	
April .....	3,476	
May .....	4,298	
June .....	3,843	
<b>TOTAL</b> .....		24,899
<b>GRAND TOTAL FOR BIENNIUM</b> .....		48,815
Inquiries from World's Fair, 1939.....	20,000	
Inquiries from World's Fair, 1940.....	5,700	
<b>TOTAL</b> .....		25,700
<b>TOTAL OF ALL TYPES OF INQUIRIES, INCLUDING THE</b>		
<b>WORLD'S FAIR, FOR BIENNIUM</b> .....		75,515

### COURTESY CARDS DISTRIBUTED

With every booklet sent in response to an inquiry, a courtesy card, signed by Governor Clyde R. Hoey, is enclosed with a personal greeting from the Governor on the reverse side, extending a cordial invitation to the recipient to visit North Carolina. Attached to this courtesy card is an acceptance card, addressed to the Governor's Hospitality Committee and requiring no postage, which recipients are asked to fill out and mail if they actually visit North Carolina.

When filled out, this card shows the number of days spent in the State, the sections visited—mountains, piedmont, sandhills or coastal regions; the number of persons in the party and whether the party came by automobile, bus or rail.

Only about five per cent of these cards are filled out and returned, but this is enough to give a definite index as to the number of days spent in North Carolina, the sections most popular with visitors, and the predominant types of transportation.

A tabulation of the cards returned from February 1 through June 30, 1940, is as follows:

<i>Month</i>	<i>No. People</i>	<i>Days</i>	<i>Mtns.</i>	<i>Pied. Sandhills Coast Sections Visited</i>		
February .....	29	66	25	21	11	15
March .....	173	399	139	71	43	67
April .....	415	1,801	443	159	86	277
May .....	545	2,341	1,230	352	139	583
June .....	669	2,890	1,806	315	127	565
<b>TOTALS</b> .....	1,831	7,497	3,643	918	406	1,507

The tabulation of these cards returned by persons who had actually come to North Carolina as a result of the State Advertising Campaign, showed further that 7,747 came in automobiles.

Assuming that each of these 1,831 persons who came to the State spent a minimum of \$6 a day while here (the national average expenditure by persons on tour is estimated \$8 a day by the American Automobile Association) the total cash left by these visitors for the 7,497 days they were in North Carolina

amounted to \$44,982. The average length of stay for those who returned cards was 4.09 days per person.

In order to facilitate the answering of inquiries concerning specific resorts and places in the State, the office of the Governor's Hospitality Committee maintains a file of booklets and folders published by resorts and Chambers of Commerce. It sends these along with the various State Advertising booklets as an added service whenever any persons ask for detailed information about any of these places. The names of the persons asking for this information are also referred to Chambers of Commerce or other appropriate agencies in the localities involved so they may also write them in detail about their communities.

### **RECORD KEPT OF ALL INQUIRIES**

A record is kept of the name and address of every person who replies to a North Carolina advertisement and who writes the Governor's Hospitality Committee for information. A list classified with regard to the sections of the state in which they expressed chief interest, is sent to every Chamber of Commerce, Board of County Commissioners and organized Real Estate Board in the State. Many of these agencies use these lists in following up the State Advertising Program by sending out booklets or leaflets concerning their immediate localities.

Through the past two years, the Secretary of the Governor's Hospitality Committee has made numerous talks before civic clubs, Chambers of Commerce, conventions, and other organizations in all portions of the State, pointing out how each community can benefit most from the State Advertising Campaign and other features of the program of the Department. During this period the Secretary has appeared before some 40 Civic Clubs, Chambers of Commerce, Community meetings, and other organizations in 30 or more cities and towns of the State. He has stressed the point that while the State's advertising has brought people to North Carolina by the thousands, whether they remain in the State or not depends upon the manner in which the individual communities sell themselves to these visitors.

He has called attention to the importance of courtesy, hospitality, good food and comfortable, clean accommodations in getting and holding tourists from other states. He has tried to make the people of the State see that the State Advertising Campaign is to the tourist trade in North Carolina what attractively dressed show windows are to a store. Whether these people remain in North Carolina depends upon what the visitors find inside the store, the attractiveness with which they are displayed and the courtesy and friendliness of the salespeople. The store is North Carolina; the salespeople, its citizens.

### **COUNTY COMMITTEES HELP**

In addition to the work done to inform the people of the State with regard to the objectives and results of the State Advertising Campaign, the Secretary of the Governor's Hospitality Committee has also maintained contact with the chairmen and members of the various County Hospitality Committees. Many of these county committees have been instrumental in persuading counties, towns, and committees to publish illustrated booklets and folders telling of their facilities in such a way as to appeal to tourists and homeseekers from other states. Tens of thousands of these booklets have been sent out to pro-



spective visitors by Chambers of Commerce, Boards of Trade and other similar organizations to persons whose names were obtained from the lists of inquirers compiled and sent out by the Division of State Advertising. The results obtained by many of these localities have been so satisfactory that they have increased their follow-up efforts. In several instances budgets for local advertising have been increased materially from year to year.

After three years of advertising effort, it is now known that the amount spent by tourists in North Carolina has increased more than 260 per cent. It is estimated that the tourist expenditures during the calendar year 1939 amounted to more than \$102,000,000 while in 1937 this amount was only about \$35,000,000. This means that more than \$8,500,000 a month is spent in North Carolina by visitors from other states and that an average of more than 3,000,000 persons, in 1,000,000 automobiles, stay for an average of at least six days and spend approximately \$6 a day each while in the State.

These figures are based upon gasoline consumption, traffic counts made by the State Highway and Public Works Commission on all of the main highways, on traffic counts made by the National Park Service in the Great Smoky Mountains National Park and by the U. S. Forest Service in the various National Forests.

### HOW TRAVEL MONEY IS SPENT

According to surveys made by the U. S. Travel Service Bureau and the American Automobile Association, the travel dollar is spent as follows: 25 per cent for retail purchases from local merchants; 21 per cent for food; 20 per cent for lodging; 20 per cent for gasoline, oil and accessories; 8 per cent for amusements and 6 per cent for soft drinks and confections.

This means, then, that on the basis of an expenditure of \$100,000,000 a year by visitors from other states, \$25,000,000 is spent with local retail merchants in the communities in which they stop; \$21,000,000 with the restaurants, cafes and eating places; \$20,000,000 with the hotels, tourist homes and tourist camps for lodging; \$20,000,000 for gasoline, oil, tires and accessories; \$8,000,000 for amusements, such as picture shows, golf, swimming, and so forth; and \$6,000,000 for soft drinks, ice cream and confections at soda fountains.

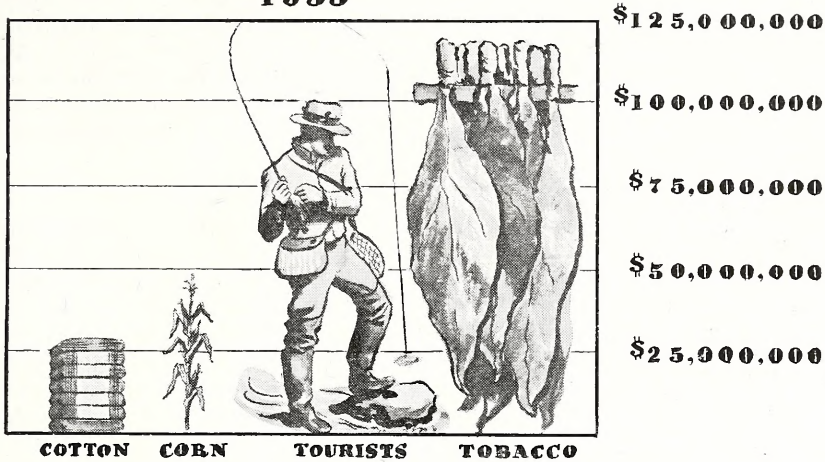
More than 422,000,000 gallons of tax-paid gasoline were used by automobiles and trucks in North Carolina during the calendar year 1939. This was an increase of 25,686,463 gallons over the amount used in 1938 and an increase of more than 37,692,000 gallons over the amount used in 1937, when the State Advertising Campaign was started. It is conservatively estimated that more than 50,000,000 gallons of gasoline are now burned each year in cars of visitors from other states. This means that in paying the state gasoline tax of 6 cents a gallon, tourists from other states are contributing \$3,000,000 a year to the state highway fund for highway construction and maintenance. They are paying an additional \$1,000,000 a year in sales taxes. Altogether, the state is collecting some \$4,000,000 a year from out-of-state visitors in gasoline and sales taxes.

### HOW GASOLINE CONSUMPTION HAS GROWN

Gasoline consumption in 1939 was 25,686,463 gallons greater than in 1938 and 37,692,109 gallons greater than in 1937, the year in which the State Advertising Campaign was started. The increase in the amount of tax-paid

gasoline sold in 1939 was 79,008,005 greater than the amount sold in 1936, the year before the advertising program was started. The growth in gasoline consumption is not attributed entirely to the increase in tourist travel, by any means. It is felt, however, that the travel promotion work done by the Division of State Advertising and the Governor's Hospitality Committee has been responsible for a substantial amount of the increase.

**1939**



Tourist expenditures in North Carolina are greater than the returns from any agricultural crop except tobacco. The above chart shows a comparison of the income from tourists and various crops.

The total number of gallons of gasoline consumed for the calendar years from 1936 through 1939, and for the first six months of 1940 (through June 30) are as follows:

1936 .....	343,690,224 gallons
1937 .....	385,006,120 gallons
1938 .....	397,011,866 gallons
1939 .....	422,698,329 gallons
1940 (Jan. 1-June 30) .....	210,602,534 gallons

If the gain in gasoline consumption shown during the first six months of 1940 continues for the last six months, the total for the calendar year should exceed 426,000,000 gallons, revenue officials say.

### GETTING FINE COOPERATION

For the past two years the finest coöperation has been received from the hotel, restaurant, service station and resort proprietors by the Governor's Hospitality Committee. Valuable support and assistance has also been received from Chambers of Commerce, Boards of Trade, and civic clubs in every part of the state. Without this support, the committee could not have accomplished as much as it has.

There is still a very definite need, however, for greater public interest in the State Advertising Program. Residents of the various cities, towns, and



communities in the State need to show more courtesy and hospitality to visitors, also see to it that the best in the way of food and accommodations are available for tourists. While much has been written about "Southern Hospitality" and people talk about it a great deal, too often it is lacking, especially in contacts with outsiders. Experience has shown, however, that courtesy, hospitality, and friendliness are among the best builders of any kind of business and especially of the tourist business.

North Carolina still has a reputation among many visitors from other states for poor or carelessly prepared food, for uncomfortable beds, and poor accommodations. The Secretary of the Governor's Hospitality Committee has attempted to make people realize that it is good business and will bring more business if they will correct this condition and see to it that the best of food and accommodations are provided, along with courteous and thoughtful service.

### **HANDLES DEPARTMENTAL NEWS**

The office of the Governor's Hospitality Committee also prepares news concerning the entire Department. The Secretary keeps in touch with the division heads and writes most of the news releases having to do with the Department of Conservation and Development and its various divisions. More than 200 news stories a year are written by the secretary for release to the daily newspapers in the state while additional releases are written from time to time and sent to the weekly newspapers. The office attempts to keep the people of the State thoroughly informed concerning the activities of every division through these news releases. The office keeps a record of news stories carried in the daily and weekly newspapers in the state and finds that from 400 to 500 news stories a month are carried which have either a direct or indirect bearing on the activities of the Department of Conservation and Development. The office has always received the finest coöperation from the newspapers. It frequently prepares special stories on specific subjects when so requested by individual newspapers.

The Secretary of the Governor's Hospitality Committee is also frequently called upon to write special articles dealing with the State Advertising Campaign which are requested from time to time by out-of-state magazines and periodicals. During the past two years, the secretary has written ten or more such articles which have appeared in publications with nation-wide circulations. These have served to acquaint the public at large with the purposes and accomplishments of the State Advertising Campaign.

### **BETTER FOOD AND SERVICE**

The increase in the number of persons visiting North Carolina and the great growth in the volume of tourist expenditures have focused attention on the need for better food and service in many eating places in North Carolina. As a result, the National Restaurant Association assisted by the Division of Vocational Education in North Carolina, started an active campaign to improve this situation in the fall of 1940. The Secretary of the Governor's Hospitality Committee was asked to assist in this program, which consisted in the holding of special schools for waitresses and cafe operators in various parts of the state.



Schools lasting for a duration of approximately two weeks, were organized and held in Raleigh, Durham, Charlotte and Winston-Salem. An average of approximately 100 waitresses was enrolled in each school and the cafe operators gave the fullest coöperation. These training schools, designed to increase the quality of service and elevate the standards of the restaurants and their employees, were so successful that plans are now under way in the Division of Vocational Education for the extension of this training program to many of the smaller cities and towns in the State. There has been a noticeable improvement in both the service and the quality of food in the restaurants and cafes which participated in this program.

Hotel operators throughout the State have caught the spirit and realized the business gains to be had from improved service, better beds, baths, furnishings and food. The result is that scores of hotels have spent many thousands of dollars during the past two years in remodeling, putting in new furniture and equipment and in improving the food and service in their coffee shops and dining rooms. Improved accommodations of all types are now found in the State. By the time the 1941 season opens, they will be still better.

Tourist home and tourist camp operators have also begun to fall in line, especially the tourist home operators, with the result that very good medium priced accommodations are to be had in most of the tourist homes and some of the tourist camps throughout the state.

The various gasoline and oil companies in North Carolina and their service station operators have been taking an increased interest in the Advertising Campaign and are giving fullest coöperation to the Governor's Hospitality Committee. Many of them are stressing the importance of courtesy and friendliness on the part of employees and insisting upon clean stations and sanitary rest rooms.

### ASSISTS GARDEN CLUB

For the past three years, the Secretary of the Governor's Hospitality Committee has been assisting the Garden Club of North Carolina in promoting its annual Garden Pilgrimage each spring. He has assisted in editing the guide book to the pilgrimage, in the distribution of these books to travel bureaus, motor clubs and other tourist promotion bureaus outside of North Carolina. He has also assisted in handling the publicity for the Garden Pilgrimage. The distribution of these guide books and the nation-wide publicity given the pilgrimage have attracted many people from other states to visit the North Carolina gardens open during the pilgrimage. During the 1939 pilgrimage more than 4,000 persons visited the gardens that were open during the tour, many of these being from other states. The Governor's Hospitality Committee feels that the annual garden pilgrimage is one of the most interesting events in the state and that it is attracting a great many very desirable visitors.

The office of the committee is also in charge of the routing of the sets of enlargements of North Carolina pictures which it lends for window and lobby displays to motor clubs, railroad offices, airline offices, travel bureaus and other agencies. The Chicago Motor Club has been using several sets of these pictures for more than two years, sending them to branches throughout Illinois and Indiana. Altogether, these sets of seven large photographs of North Carolina scenes, measuring 36 x 40 inches and attractively framed,

have been displayed in more than 100 cities throughout the eastern portion of the United States during the last two and one-half years.

Much favorable publicity for North Carolina has been obtained through the efforts of this office to interest various newsreel editors and camera men in North Carolina events and subjects, with the result that thousands of feet of film dealing with events in the state have been shown on screens throughout the nation.

## DIVISION OF WATER RESOURCES AND AND ENGINEERING

The water resources of North Carolina constitute one of the greatest elements of natural resource in a State noted for its abundance. Every feature of climate, topography, soil, and geography is favorable to the best use and conservation of water. The rapid development of the State has been due, in no small degree, to the use of these abundant water resources.

Among the uses to which these resources have been put are water supplies for towns, cities and industries, navigation, water power, commercial and sport fishing, recreation, including boating, bathing, and scenic interest, and drainage. In the early stages of development of an area only a few of these uses are active and have little or no effect on any other use. Relatively pure water was to be had in all streams and this use caused no interference with any other.

With increasing growth of population, the rise of urban centers, rapid increase in the number of industries using water supplies and the streams for the disposal of wastes, the conflict of uses became of great importance. Power reservoirs were constructed without much consideration of other uses. Industries began to discharge large quantities of polluting wastes into the streams, often to cause nuisance, kill fish, make bathing and boating impossible, and either rendering waters unfit for use as public water supplies or requiring expensive filtration processes. Other complications arose. While in one part of the watershed areas large sums were being spent for agricultural purposes and for malarial control, in another section reservoirs were being built, taking river bottom lands out of cultivation and providing opportunities for breeding of mosquitos.

The cutting of forests on steep slopes, the adoption of cropping practices which permitted heavy damage from soil erosion not only washed away the basic soil wealth but filled stream channels, silted reservoirs, muddied water supplies, and rendered large areas of land unfit for any proper use. Rains falling in these denuded areas ran off into the streams without any retardation, stopped the infiltration of ground water upon which underground water supplies depend and increased greatly the frequency and severity of floods. With the deficient ground water storage, the dry weather flow of streams diminished and droughts became matters of real consequence.

Along the sea coast and in the tidal waters of the sounds of North Carolina other problems arose. Navigation became more important and the depth of channels, maintenance of inlets in the barrier reef, provision of harbors for small draft and ocean-going vessels, the prevention of pollution, the control and prevention of beach erosion through the agencies of wind and wave, the maintenance of proper salinity conditions for the propagation of shell fish, food fish, and aquatic bird life must be provided for.

The work of the Water Resources Division is directed to the solution of these problems and others related thereto. It seeks to collect the essential data, to make studies of all these situations, to consider the effect of each proposed development upon other associated uses, and show the way to conserve



these water resources so that they may not be exploited and wasted but be dedicated to the best use for the largest number of people in perpetuity.

The major activity of the Department is the work of maintaining and operating the stream gaging stations on the various watersheds of the State. By means of these stations a continuous record is kept of the variations in height of water in the stream and by frequent measurements of flow and calculation the actual flow of these streams is determined. Thus, accurate information is at hand, so that the maximum or flood flows and their frequencies, the minimum or dry weather flow, and the total flow for all periods can be ascertained. It is at once apparent that this information becomes more and more accurate and valuable as the duration of the investigation is increased. Also, it is manifestly impossible to collect this information on all streams and at every locality. It, therefore, is important that the stations be erected and studies made at many places over the whole state and continuously over long periods of time.

The work is carried on under a coöperative agreement with the Water Resources Branch of the U. S. Geological Survey and with the coöperation of other Federal and private agencies. The work is carried on under the joint supervision of the District Engineer of the Geological Survey, Mr. E. D. Burchard, with offices at Asheville, and this Division with offices in Raleigh.

On September 1, 1940, there were one hundred and thirty-one such stations being operated and maintained in North Carolina. This represents an increase of thirty-five stations over the number reported on July 1, 1938. All but four of these stations are now equipped with automatic instruments for recording the gage heights continuously and with additional facilities for measuring the discharge of the streams from cableways or bridges.

Various Federal agencies and private individuals and corporations coöperate with this Division and with the Geological Survey in the operation of these stations. The Corps of Engineers, United States Army, contributed to the erection and now to the maintenance of twenty-five of these stations. These are located as follows: Roanoke River Basin, 2; Tar River Basin, 3; Neuse River Basin, 5; Cape Fear River Basin, 8; Yadkin River Basin, 5; Broad River Basin, 2.

The Soil Conservation Service has coöperated in maintaining gaging stations on streams in the Piedmont area on the Yadkin-Pee Dee and Cape Fear Rivers, where soil erosion is at its worst and where this service is most actively at work, studying soil erosion and developing methods of erosion control. During the last year this service, acting in coöperation with other arms of the U. S. Department of Agriculture and the Corps of Engineers, U. S. Army, has been engaged in studies of flood control under the supervision of the Flood Control Coördinating Committee. The study is being made for the area in the Yadkin-Pee Dee Basin in North Carolina and will determine the amount and value of flood control that may be obtained through adjustment of land cover, cropping practices, and adoption of methods of soil erosion control. This study is of great importance and this Division has been coöperating with the Coördinating Committee in every way possible. In order to obtain the necessary information on stream discharge, fourteen additional stations have been constructed and are, at the date of this report, being maintained at the expense of the Coördinating Committee, out of Federal appropriations. The continued support of these stations after January 1, 1941 is contingent upon additional

Federal appropriations. If these funds are not available, the stations will have to be abandoned or additional support from State funds provided.

The Tennessee Valley Authority is now assisting in maintaining forty-three gaging stations, all located on streams tributary to the Tennessee River. Three stations are maintained in coöperation with licensees of the Federal Power Commission on Cullasaja Creek at Highlands, Jonathan Creek near Cove Creek, and the Pigeon River at Hepco. The U. S. Weather Bureau is assisting in maintaining stations on the Catawba River at Catawba, Fishing Creek near Enfield, Lower Little River at Manchester, Neuse River at Goldsboro, and the Tar River at Greenville. The City of Durham, the Sylva Paper Board Company, The Champion Fibre Company, and the Appalachian Power Company make annual contributions to defray a portion of the expense of operating gaging stations which furnish needed data for their operations.

During the last biennium a new bulletin, Discharge Records of North Carolina Streams, Bulletin No. 39, was published and distributed widely. This bulletin gives condensed data on characteristics of stream flows for all years of record on both active and discontinued stations. The detailed records of daily flows is available at the offices of the Geological Survey in Asheville and at the offices of this Division in Raleigh.

Table I following is a list of Stream Gaging Stations in operation in North Carolina as of September 1, 1940.

TABLE I  
STREAM GAGING STATIONS IN NORTH CAROLINA

Station	Date Estab- lished	Total Years of Record	Coöperation
Abbotts Creek, Lexington, 530.....	1940	-----	Flood Control Coörd. Comm.
Bear Creek, Hemp, 426.....	1939	-----	USAE Wil.—C. & D.
Beaverdam Swamp, Lebanon, 541.....	1940	-----	Flood Control Coörd. Comm.
Beetree Creek, Swannanoa, 1122.....	1926	14	TVA—C. & D.
Broad River, Boiling Springs, 707.....	1925	15	C. & D.
Broad River, Chimney Rock, 708.....	1927	13	C. & D.
(Second) Broad River, Cliffside, 706.....	1925	15	C. & D.
Brown Creek, Polkton, 519.....	1935	5	C. & D.—Soil Conservation Serv.
Buffalo Creek, Greensboro, 413.....	1928	12	C. & D.
(North) Buffalo Creek, Greensboro, 412.....	1928	12	C. & D.
Cane River, Sioux, 1133.....	1934	6	TVA—C. & D.
Cataloochee Creek, Cataloochee, 1134.....	1934	6	TVA—C. & D.
Cape Fear River, Fayetteville, 401.....	1928	41	USGS—Federal Type
Cape Fear River, Lillington, 408.....	1923	17	USAE Wil.—C. & D.
Cape Fear at Lock No. 3, Tarheel, 424.....	1939	-----	USAE Wil.—C. & D.
Cape Fear (Northeast), Chinquapin, 427.....	1940	-----	USGS Wil.—C. & D.
Catawba River, Catawba, 601.....	1934	9	C. & D.—USWB
Contentnea Creek, Hookerton, 312.....	1928	12	C. & D.
Contentnea Creek, Wilson, 315.....	1930	10	USAE Wil.—C. & D.
Cullasaja Creek, Cullasaja, 1206.....	1921	21	TVA—C. & D.
Cullasaja Creek, Highlands, 1216.....	1927	13	TVA—C. & D.
Dan River, Francisco, 105.....	1927	13	C. & D.
Dan River, Leaksville, 107.....	1929	11	C. & D.
Dan River, Wentworth, 111.....	1939	-----	USAE Norfolk—C. & D.
Davidson River, Brevard, 1114.....	1920	20	C. & D.—TVA
Deep Creek, Roseland, 542.....	1940	-----	Flood Control Coörd. Comm.
Deep River, (E. Fk.), High Point, 411.....	1928	12	Soil Cons. Service—C. & D.
Deep River, (W. Fk.), High Point, 412.....	1928	15	Soil Cons. Service—C. & D.
Deep River, Moncure, 421.....	1930	11	USAE Wil.—C. & D.
Deep River, Ramseur, 405.....	1922	16	C. & D.
Deep River, Randleman, 415.....	1928	12	Soil Cons. Service—C. & D.
Dial Creek, Bahama, 307.....	1925	15	C. & D.
Drowning Creek, Hoffman, 525.....	1939	-----	USAE Charleston—C. & D.
Dutch Buffalo Creek, Mt. Pleasant, 538.....	1940	-----	Flood Control Coörd. Comm.
Dutchmans Creek, Cornatzer, 529.....	1940	-----	Flood Control Coörd. Comm.
Elk Creek, Banner Elk, 1002.....	1934	6	TVA—C. & D.
Elk Creek, Elk Park, 1001.....	1934	6	TVA—C. & D.
Eno River, Hillsboro, 311.....	1929	11	C. & D.
Fisher River, Copeland, 516.....	1931	9	C. & D.
First Broad River, Lawndale, 710.....	1940	-----	USAE Charleston—C. & D.
Fishing Creek, Enfield, 202.....	1918	22	USGS Federal Type—USWB
Flat River, Bahama, 304.....	1925	15	C. & D.
Flat River at Dam, Bahama, 310.....	1925	15	C. & D.
Forbush Creek, Yadkinville, 533.....	1940	-----	Flood Control Coörd. Comm.
Fourmile Branch, Southmont, 528.....	1940	-----	Flood Control Coörd. Comm.
French Broad River, Asheville, 1101.....	1903	43	USGS Federal Type—TVA
French Broad River, Bent Creek, 1127.....	1934	6	TVA—C. & D.
French Broad River, Blantyre, 1115.....	1920	20	TVA—C. & D.
French Broad River, Calvert, 1119.....	1924	16	TVA—C. & D.
French Broad River, Hot Springs, 1130.....	1934	6	TVA—C. & D.
French Broad River, Rosman, 1107.....	1936	6	C. & D.
Green River, Mill Spring, 709.....	1939	-----	USAE Charleston—C. & D.
Haw River, Benaja, 416.....	1928	12	C. & D.
Haw River, Haw River, 417.....	1928	12	C. & D.



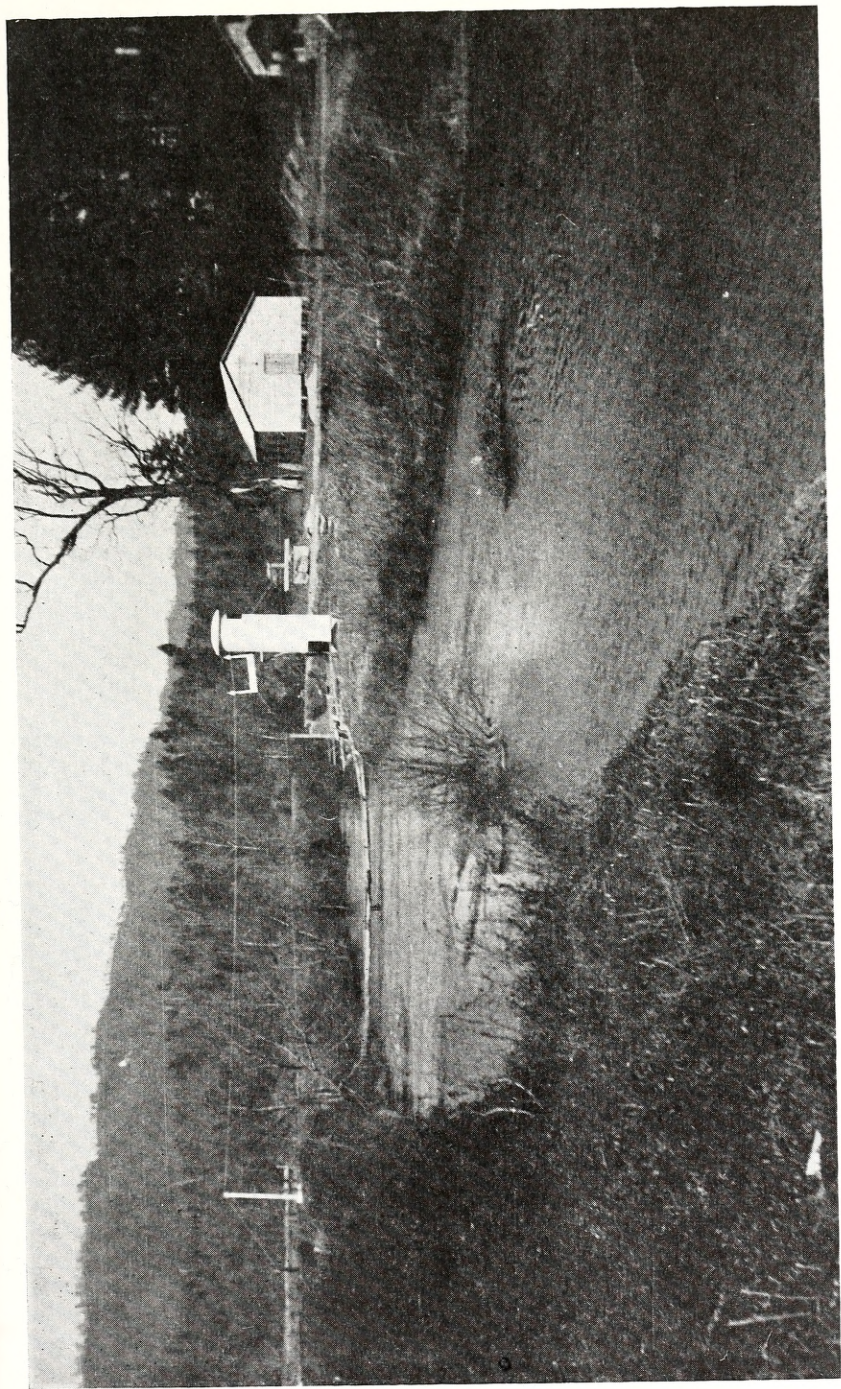
STREAM GAGING STATIONS IN NORTH CAROLINA—*Continued*

Station	Date Estab- lished	Total Years of Record	Coöperation
Hiwassee River, Hayesville, 1307.....	1934	7	TVA—C. & D.
Hiwassee River, Murphy, 1301—Discontinued.....	1940	40	
Hiwassee River above Murphy, 1310.....	1939	-----	TVA—C. & D.
Hiwassee River, Hiwassee Dam, 1308.....	1934	6	TVA—C. & D.
Horsepen Creek, Battle Ground, 410.....	1934	11	C. & D.
Ivy River, Marshall, 1128.....	1934	6	TVA—C. & D.
Jonathan Creek, Cove Creek, 1126.....	1930	10	TVA—C. & D.
Jones Creek (N. Fk.), Wadesboro, 520.....	1935	5	Soil Cons. Service—C. & D.
Big Laurel Creek, Stackhouse, 1129.....	1934	6	TVA—C. & D.
Linville River, Branch, 611.....	1922	18	C. & D.
Little Brown Creek, Polkton, 518.....	1935	5	Soil Cons. Service—C. & D.
Little Raft Swamp, Red Springs, 540.....	1940	-----	Flood Control Coörd. Comm.
Little River, Princeton, 316.....	1930	10	USAE Wil.—C. & D.
Little Sugar Creek, Charlotte, 613.....	1924	16	C. & D.
Little Tennessee River, Fontana, 1222.....	1938	2	TVA—C. & D.
Little Tennessee River, Iotla, 1219.....	1929	11	TVA—C. & D.
Little Tennessee River, Judson, 1201.....	1896	44	TVA—C. & D.
Little Yadkin River, Donnah, 532.....	1940	-----	Flood Control Coörd. Comm.
Lower Little River, Linden, 419.....	1928	12	USAE Wil.—C. & D.
Lower Little River, Manchester, 423.....	1938	2	C. & D.—USWB
Lumber River, Boardman, 514.....	1929	11	USGS—Federal Type
Mayo River, Price, 108.....	1929	11	C. & D.
Middle Creek, Elkton, 539.....	1940	-----	Flood Control Coörd. Comm.
Middle Creek, Clayton, 317.....	1939	-----	USAE Wil.—C. & D.
Mills River, Mills River, 1118.....	1934	8	TVA—C. & D.
Mills River (S. Fk.), The Pink Beds, 1123.....	1926	14	TVA—C. & D.
Mountain Creek, Ellerbe, 531.....	1940	-----	Flood Control Coörd. Comm.
Mud Creek, Naples, 1108.....	1938	3	TVA—C. & D.
Muddy Creek, Archdale, 422.....	1934	6	Soil Cons. Service—C. & D.
Nantahala River, Almond, 1209.....	1912	25	TVA—C. & D.
Nantahala River, Rainbow Springs, 1223.....	1940	-----	TVA—C. & D.
Neuse River, Clayton, 309.....	1927	13	USAE Wil.—C. & D.
Neuse River, Goldsboro, 313.....	1930	10	USGS Federal Type—USWB
Neuse River, Kinston, 314.....	1930	10	USAE Wil.—C. & D.
Neuse River, Northsides, 318.....	1927	13	C. & D.
New River (S. Fk.), Jefferson, 904.....	1929	14	C. & D.
New River (N. Fk.), Crumpler, 901.....	1928	20	C. & D.
Noland Creek, Bryson, 1221.....	1935	5	TVA—Phillip Rust—C. & D.
Noliehueky River, Poplar, 1120.....	1925	15	TVA—C. & D.
North Toe River, Altapass, 1131.....	1938	6	TVA—C. & D.
Notteley River, Ranger, 1302.....	1918	30	TVA—C. & D.
Ocanalufy River, Cherokee, 1213.....	1921	20	TVA—C. & D.
Pee Dee River, Ansonville, 521.....	1938	2	C. & D.—Carolina Power & Light Company
Pee Dee River, Rockingham, 510.....	1927	13	C. & D.
Pigeon River, Canton, 1109.....	1928	14	TVA—C. & D.
Pigeon River, Hepeo, 1124.....	1927	13	TVA—C. & D.
Reddies River, North Wilkesboro, 527.....	1939	-----	USAE Charleston—C. & D.
Reedy Creek, Yadkin College, 536.....	1940	-----	Flood Control Coörd. Comm.
Reedy Fork Creek, Gibsonville, 414.....	1928	12	C. & D.
Richardson Creek, Marshville, 537.....	1940	-----	Flood Control Coörd. Comm.
Roanoke River, Roanoke Rapids, 109.....	1930	31	USGS Federal Type
Rockfish Creek, Hope Mills, 418.....	1939	-----	USAE Wil.—C. & D.
Rocky River, Norwood, 515.....	1929	11	C. & D.

TABLE I  
STREAM GAGING STATIONS IN NORTH CAROLINA—*Continued*

Station	Date Estab- lished	Total Years of Record	Coöperation
Rocky River, Turnersburg, 535	1940	-----	Flood Control Coörd. Comm.
Scott Creek, Sylva, 1217	1928	12	TVA—C. & D.
Smith River, Spray, 110	1939	-----	USAE Norfolk—C. & D.
South Toe River, Newdale, 1132	1934	6	TVA—C. & D.
Swannanoa River, Biltmore, 1113	1934	11	TVA—C. & D.
Swannanoa River (N. Fk.), Black Mountain, 1121	1926	15	TVA—C. & D.
Tar River, Greenville, 205	1935	6	USAE Wil.—C. & D.—USWB
Tar River, Nashville, 203	1928	-----	USGS—Federal Type
Tar River, Tarboro, 204	1931	12	USAE Wil.—C. & D.
Tar River, Tar River, 206	1939	-----	USAE Wil.—C. & D.
Third Creek, Cleveland, 534	1940	-----	Flood Control Coörd. Comm.
Tuckaseegee River, Bryson, 1202	1897	43	TVA—C. & D.
Tuckaseegee River, Dillsboro, 1218	1928	12	TVA—C. & D.
Tuckaseegee River, Tuckaseegee, 1220	1934	6	TVA—C. & D.
Uwharrie River, Eldorado, 522	1938	2	USAE Charleston—C. & D.
Uwharrie River, Trinity, 517	1934	6	Soil Cons. Service—C. & D.
Valley River, Tomotla, 1303	1918	30	TVA—C. & D.
Waccamaw River, Freeland, 524	1939	-----	USAE Charleston—C. & D.
Watauga River, Sugar Grove, 1003	1940	-----	TVA—C. & D.
Yadkin River, Wilkesboro, 513	1929	11	C. & D.
Yadkin River, Yadkin College, 511	1928	12	C. & D.
Yadkin River, Patterson, 526	1939	-----	USAE Charleston—C. & D.
Yadkin River (South), Cooleemee, 512	1928	12	C. & D.
S. Yadkin River, Mocksville, 523	1938	2	C. & D.





This stream gaging station at Patterson on the Yadkin River is one of 131 stations in North Carolina which measure the flow of streams.



From this table it will be seen that records of stream discharge are available for various periods of time as follows:

40 years and over .....	5
30 to 40 years .....	3
20 to 30 years .....	6
10 to 20 years .....	43
5 to 10 years .....	36
Less than 5 years .....	38
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Total .....	131

Of the total number of active stations only seventeen have been in operation long enough to cover fifteen years of continuous record. Since it is necessary to have a record for at least thirty years to be reliable, it can be seen that stream gaging has only been started in North Carolina and this work must go forward to be of real value.

The funds now available, consisting of direct appropriations by the State to the U. S. Geological Survey in the coöperative account, of expenditures of this Division for stream gaging, and the Federal appropriations matching these on an equality basis, are not nearly sufficient, even when supplemented by allowances from other Federal agencies to maintain this activity and take care of repairs and replacements to equipment. It is estimated that it costs \$400 per year to operate and maintain a station and prepare, calculate, and publish the records. The appropriation of the biennium covered by this report is but slightly more than one-tenth of this amount and when matched with Federal funds is still only twenty per cent of the needed amount.

The regular appropriation made for the biennium 1939-41 provided \$3,500 for direct coöperation with the U. S. Geological Survey. By agreement with the Survey, additional expenditures by this Division for stream gaging work are accepted by the Survey and are matched equally from Federal funds. The actual expenditures from State funds for the biennium are:

#### 1938-39

Direct appropriation .....	\$ 3,505.95
Coöperative expenditures .....	7,524.68
	<hr/>
	\$11,030.63

#### 1939-40

Direct appropriation .....	\$ 5,498.32
Coöperative expenditures .....	6,449.94
	<hr/>
	\$11,948.26

The biennium covered by this report passed without any unusual incidents, the flows being neither unusually large nor small. However, the excessive rains of August 13 and August 30, 1940 brought about the highest stream discharges of all time on many streams. These floods caused severe property damage and loss of life to many people. Many highways were washed out and innumerable bridges swept away or badly damaged. The damage was heaviest in the streams of Western North Carolina and along the Roanoke. Other Piedmont and Coastal Plain rivers were not seriously affected. This damage

caused an estimated loss of \$15,000 to gaging stations and equipment and an emergency appropriation of \$7,800.00 was made to make necessary repairs and replacements.

### **GROUND WATER INVESTIGATION**

The Division continues to collect records of ground water elevations in a number of abandoned wells throughout the State, in order to observe the trends of ground water elevations and to study the relationship between ground water elevations and precipitation and other surface factors. One of the more important of these stations is the McCauley Well at Chapel Hill. This record was interrupted several years ago because of the dilapidated condition of the well covering. This condition was repaired in June, 1938, and the recording apparatus reinstalled.

The increased dependence of many cities, industries and private individuals upon ground water resources in many parts of the State, and especially in the lower Piedmont and Coastal areas, makes imperative a thorough investigation of these resources and the adoption of State laws governing the use of flowing wells. Recommendations will be made to the next session of the General Assembly for suitable laws covering the control and conservation of these supplies. The experience of other coastal states which have suffered serious losses of ground water supplies through failure to control them, points to the urgency of adoption of such laws to prevent similar losses in North Carolina.

### **EVAPORATION RECORDS**

The Division has maintained evaporation stations at Lake Michie, Durham, Chapel Hill, and Lake Badin, collecting records of evaporation from land and water surfaces. Additional evaporation stations in other sections of the State are greatly needed, in order to provide essential data for the design and operation of reservoirs, where such losses are of primary importance.

### **QUALITY OF WATER**

The renewed activity in efforts to secure the location of new industries in the state brings daily evidence of the great need for extensive records of chemical analyses of surface and ground water supplies. The existing data on this important subject is utterly inadequate and scattered, consisting, in most cases, of single analyses of some particular stream, uncorrelated to stream stage and for only one particular time.

At the time of the last report, a small emergency appropriation was made available which permitted the purchase of a small amount of laboratory equipment and a limited number of analyses. The major part of this money was spent on an investigation of pollution in the Roanoke River and did not meet the need for general analyses.

Many industries require water supplies of certain specific quality, suitable to their particular processes and needs and other considerations, such as available power, tax rate, labor, and sites, are secondary. If the State is to succeed in its efforts to locate such industries it must have either a widespread and complete set of data on chemical quality to place before the prospect or have facilities for making necessary tests at sites that would otherwise be practicable and desirable. Within the last two years many such instances have



occurred in which the availability of satisfactory analyses would have been very determinative and helpful. It is earnestly urged that the General Assembly make suitable provision for this additional service.

### STREAM POLLUTION

The rapid increase in the number and size of cities and industries throughout the state has brought about greatly increased pollution of the surface waters. There is at present not only no law which can adequately control such pollution (except in the case of streams which may be desired as a source of public water supply), but no agency of the State government now has any authority or funds with which they may investigate the present extent and character of the pollution problem. An effort was made at the last session of the General Assembly to secure the passage of laws covering stream pollution, but the effort was unsuccessful. It is again most urgently recommended that some adequate legislation be enacted to correct present conditions and to preserve the quality of water courses for future generations to use and enjoy.

### COASTAL STUDIES

The surveys of coastal erosion have been continued over the same area previously studied and on which a base-line of reference has been established. During the summer of 1938 and in 1940 surveys were made at Atlantic, Wrightsville, and Carolina Beaches with special work at Fort Macon Point, Moore's and Masonboro Inlets, at Wrightsville and Fort Fisher. This work is done under coöperative agreement with the U. S. Beach Erosion Board. In 1939 similar work was done at Nag's Head and Kitty Hawk, in an area extending from Kill Devil Hill to, and including, New Inlet. Sand erosion control work has been continued until a great portion of the "banks" are now under control. The establishment of the Cape Hatteras Seashore National Park has given special importance to this study of beach erosion.

Of special importance to the State is the severe erosion that is taking place at Fort Macon Point and at Fort Fisher. Unless some corrective measures are taken at Fort Fisher, the entire mound upon which the Fort was built will be washed away. The success of the control measures instituted at Wrightsville Beach gives assurance that when necessary funds are available the erosion can be brought under control. If the area is to be saved, however, prompt action must be taken. While the progress of erosion is not yet a matter of imminent danger at Fort Macon, the point is rapidly receding towards the Fort and if a severe storm should strike in an unfavorable manner, the waves would undoubtedly be breaking against the Fort itself.

The erosion along other parts of the coast continues slowly but inexorably landward at varying rates. As of the date of this report, all inlets open at the time of the previous biennial report were still open. New Inlet, however, has changed its position and appears to be gradually filling up.

### FEDERAL NAVIGATION PROJECTS

This Division maintains close coöperative relationships with the Corps of Engineers, U. S. Army, through their offices at Norfolk, Va., Wilmington, N. C., and Charleston, S. C., with regard to the surveys made by the Corps and various projects for improvement of navigation.



It is a matter of regret that the project for deepening Bogue Inlet has received an unfavorable report from the Board of Engineers. This project would be of tremendous value to the fishermen in that area and to the condition of shellfish in the sound back of the inlet.

Projects for improvement of channels and harbors at various other points have been given approval by the Engineers but the necessary appropriations have not been forthcoming from Congress, except for two projects, one providing for a channel from Oregon Inlet to Manteo, N. C., and another providing for deepening and widening the channel in Silver Lake Harbor at Ocracoke Island. The projects now on the approved list for which appropriation has not yet been made but which are of utmost importance to the State are those providing for increased depths and width of channels at and above Wilmington, a turning basin at Wilmington, an enlargement of the harbor basin at Beaufort, and provision for six turning or mooring basins along the Intracoastal Waterway. All of these projects are highly desirable and of real value to the improvement of transportation facilities.

The Corps of Engineers is also reviewing the reports previously published for the Roanoke River and for the Yadkin-Pee Dee, revising the data with reference to potential power resources, securing additional data on flood control, and making further analyses of multiple-use projects combining flood control and power production. These reports, when published, will be of great significance to the further development of hydro-electric power resources. The enormous losses by the recent floods make more imperative a thorough analysis of the cost and savings to be expected from flood control projects.

### HYDRO-ELECTRIC POWER STUDIES

The Tennessee Valley Authority has completed the construction of the Hiawassee Dam near Murphy on the Hiawassee River. The Nantahala Power Company has, within the past few months, resumed work on two important hydro-electric projects, the high-head project on the Nantahala River and a project at Glenville on the Little Tennessee River. These projects, when completed, will add greatly to the amount of developed water power in North Carolina. The same company has proposed to begin the development of a third site in this area, known as the Fontana Dam, but further development is held up, pending the final outcome of proceedings now before the Federal Power Commission. The Commission has ruled that a Federal License must be obtained for this site and the company has appealed for a rehearing. This situation is similar to that for the Tuckertown project on the Yadkin River, where the Carolina Aluminum Company has been required to secure a Federal Power License before construction can proceed.

Work on the Styers Ferry site on the Yadkin River, by the City of High Point, has been stopped by judicial decisions. The City of High Point proposed to proceed without a Federal license and a recent appeal from a lower court is now pending before the Supreme Court of North Carolina. It is hoped that some way may be found to secure a final judicial determination of the jurisdiction of the Federal Power Commission in these cases.

The following table shows the trend of power production in North Carolina in recent years.

Year	Total production (Millions KWH)	Hydro-electric Power (Millions KWH)
1935 .....	2,140	2,151
1936 .....	2,862	2,512
1937 .....	2,086	1,672
1938 .....	2,186	1,382
1939 .....	2,482	1,319

### STEAM POWER STATIONS

The Duke Power Company has recently completed the construction of a new high-duty steam-electric power plant at Cliffside, N. C. on the Broad River and is making a large addition to their existing steam electric station on the Yadkin River near Salisbury. These will add greatly to the power resources of this system and of the State and will insure against periods of low flow at the hydro-electric plants.

### MAPPING

Another biennium has passed and the status of topographic mapping and of geodetic control and leveling is but little changed. The U. S. Geological Survey has been at work on four quadrangles in the vicinity of Durham and Raleigh and the maps will soon be available. However, this is but a fraction of the work that should be undertaken. Only a very little more than one-fourth of the area of the State is adequately mapped.

This work would be done in coöperation with the U. S. Geological Survey which is prepared to spend dollar for dollar for any expenditure by the State. The estimated cost to the State to complete this mapping for the entire State is over \$800,000 for work which would require from 5 to 10 years for completion. This would mean an annual cost of from \$80,000 to \$160,000. This sum seems high but in terms of the permanent value to all concerned would be of untold benefit. Such a program would coördinate many piece-meal surveys now being made, would avoid duplication of effort, and make unnecessary hundreds of investigations and surveys on lesser areas.

The Geodetic Control Survey, carried on for several years under the sponsorship of this Division as a project of the Work Projects Administration, was discontinued in June, 1939, for lack of sponsor's funds and the records have been delivered to this Division. This work of setting up a series of monuments, each referenced to a system of state coördinates, is valuable, not only for the local uses to which such monuments will be devoted but as a base for any state-wide mapping project such as that referred to in the foregoing paragraph.

Adequate mapping, permanently referenced to a system of coördinates, together with a network of monuments to which all private and public surveys would be referenced is not only desirable but an absolute necessity for intelligent, long-time development of an area. The State, by all means, should embark at once on such a coöperative program and continue it to completion.

### PERSONNEL

The personnel of this Division has undergone some change during the last biennium.

W. H. Riley and F. E. Day are Assistant Engineers, the former with headquarters in Raleigh and the latter in the District Engineer's Office, U. S. Geological Survey, at Asheville. Charles E. Feltner is employed on a part-time basis as Assistant Engineer in charge of surveys and studies relating to Beach Erosion. Mrs. Frankie Moose is Secretary to the Division.

Carroll L. Mann, Jr., formerly Assistant Engineer, resigned in September, 1939 to take another position. No provision was made for the salary of a person to fill his place and consequently the Division has suffered for lack of office staff. It is absolutely essential that this vacancy be filled; otherwise, the work of the Division will fall short of the demands made upon it. The analysis and review of data being collected, its preparation for publication and use, the collection of essential data on power resources, the care of the large map collection which is constantly referred to by many people, field surveys of many kinds, these and many other services have been rendered by this Division and should not now be cut off.



